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Motor World
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MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 1

New York, January 2, 1918

Ten cents a copy
Two dollars a year

DEALERS!

Have You Thought About the Kind of Cars People Will Buy This Year?

Never before has there been a time when motorists will be so particular about the kind of cars they will buy as they will be this year.

In the past they were not so concerned about enduring quality. They bought their cars in most part to meet a two-year service. Hardly anyone expected to use the car for a longer period.

But this year they are making their selections for a long-time service. Prices are constantly increasing, productions are threatened, and no one wants to take a chance at getting a car about the endurance of which there might be some doubt.

Naturally, the dealer who handles a car in which there is universal confidence will have an advantage over his less fortunate competitors.

The Hudson Super-Six now has 50,000 owners. It has established itself in such a way that it is one of the cars that will be favored by those who intend that the car they buy this year will serve them until normal conditions are restored. Hudson dealers have just concluded another prosperous year. They have further established themselves in their various communities. You know, as all must know, that every dealer who has had the Hudson line has placed himself at the very top among the automobile dealers of his community. If you think you could better the Hudson representation in your territory and if you realize the opportunity such a representation offers, why not write us? Perhaps we too feel that the Hudson deserves a stronger representation than it now has.

Hudson Motor Car Company
Detroit, Michigan



Van Sicklen

ELGIN

SPEEDMETERS

Built to Watchmaker's standards by Elgin watchmakers in the largest and finest equipped speedmeter factory in the world.

The Van Sicklen Company, Elgin, Ill.
Factory—Elgin National Watch Company

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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Unless your factor of safety is amply large throughout your machine—even in the so-called minor parts—your whole construction is weakened. Your ability to meet overload and emergency strains is limited by the resistance of the weakest part. The reserve strength of a car or truck is only that of its weakest part or accessory.

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FORD



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Write for our interesting proposition. Handle Ford Starters. Develop the sales in your territory. Every Ford owner a prospect.

See our exhibit at New York Show, Space C-28

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GRAY & DAVIS, Inc., Boston, Mass.

Canada—Universal Car Agency, Windsor, Ont.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, January 2, 1918

No. 1

How Much Service Should I Give?

Does the question bother you? Have you ever wondered what others think on the subject? Read this story. It offers a solution of the service problem that has eaten dealers' profits for years. Furthermore, this is an ideal time to make the change when everything is changing every day

Facts About Service

- 1—Service varies greatly. No two dealers have an identical plan.
- 2—Plans for service may generally be classified as follows:
 - (a) No free service at all. This class is very small.
 - (b) Well defined plan. This class includes quite a number employing service cards, agreements and other forms.
 - (c) Very elastic plan, or possibly no plan at all. There are a great many in this class. Their service is given according to judgment. They endeavor to give as little as possible, but, lacking a well defined plan, generally give much more than they originally intended.
- 3—Free service reduces profits to an alarming extent.
- 4—All dealers desire to see some definite solution of the problem.
- 5—Some free service must be given. It should not be eliminated for two reasons:
 - (a) The public has been educated to expect some degree of free service.
 - (b) The dealer needs to give some free service in order that he may keep in touch with the cars he has sold until he is sure the owner is familiar enough with the car to secure satisfactory operation.
- 6—DEALERS AGREE THAT THE PRESENT IS A GOOD TIME TO DEFINE SERVICE AND PUT REVISED PLANS INTO EFFECT.

Read This Service Story

SOME time ago Motor World received a letter from E. P. Moriarty of the Moriarty Motor Co., Kansas City, asking if it would not be a good plan for Motor World to recommend the elimination of free service.

Moriarty said he believed many dealers would welcome the change and that this was a very good time to put such a plan into effect. He stated that in case it were not possible to eliminate free service, it could at least be limited and put on a better basis.

Following this, Motor World wrote to 25 large dealers and distributors,

who handle thousands of cars a year, asking them for their opinion on this subject. The principal points in their opinion are given in the numbered paragraphs at the beginning of this story.

Printed on the following page is a service plan that Motor World has put together, using the ideas of the dealers and its own experience. The plan, as suggested, provides for some variation in case one dealer wants to give a little more service than another.

It is provided that service should run from about 10 to 35 hours, depending upon the car. Some dealers may want

to approach a minimum or a maximum on this and some may even deem it best for their particular business to give more than 25 hours.

It is also suggested that the limit of free service be from 30 to 90 days, and some dealers may even wish to extend this period.

What each dealer does is, of course, dependent upon his own judgment, but it seems desirable that in every case service should be put on a definite basis in order that the dealer may know at the beginning of the year what his service is likely to cost him.

Also, inasmuch as service is purely a cost against sales, it seems desirable that it should be restricted so far as possible, and that has been the motive in

the suggestion of this plan—*restricted and defined service.*

Section 1 of the suggested plan states that service should be about 1 hour for each \$50 of list price, and that the limit should be 35 hours. If a dealer will fit this plan to his car he will find that it will come very near to approximating his service needs. In case of a \$1,000 car it is 20 hours, and 20 hours is two or more days of shop labor.

Section 8 states that service should be free for some such limited period as 30, 60 or 90 days, and in case the dealer gives 20 hours within a 30-day limit it will be apparent that this represents nearly an hour a day, which should be ample for any car.

Use a Card

Section 2 recommends the use of a card punched in quarter hours. The advantage of a card is that it is a definite, tangible piece of evidence. It is one thing to tell an owner that he will get so many hours of service, but it assumes much more definite proportions when a card is placed in his hands.

Also if the time is punched out every time the card is used the owner is impressed with the fact that he has been given a certain amount of free service, whereas if it were charged up on the books without his seeing the entry he might not appreciate what had been given to him.

Section 3 recommends that nothing less than 15 minutes be punched out. This is an equitable arrangement. A workman who leaves a job, raises the hood of a car, puts it down again and goes back to work, has consumed nearly 15 minutes, because of the distraction of mind due to interruption.

For Education Only

Section 4 provides that the service cover only such things as adjustments and inspections. The idea of this free service is to make the car give satisfactory operation. If the owner punctures a tire it is not the fault of the car, and if he requires a tire repair or a tire change he should pay for it now just the same as though it were next year. *Making the repair without charge would in no way contribute toward making the owner a more intelligent operator, and intelligent operation is the reason for giving free service.*

Section 5 provides that all materials, such as grease and oil, should be charged for at regular rates. There is no reason whatsoever why there should be any other arrangement. The custom of giving grease and oil free during the early days of ownership is simply a custom that has arisen because of the dealer's inability to offset the owner's belief that service is "something for nothing."

Section 6 states that in case any of the card is not used during the service period the remaining value in the card is not to be applied to anything else, such as repairs and materials, although this is done by some dealers. Again let us assert the principle that the ob-

ject of free service is to insure satisfactory operation of the car, and that permitting the owner to take out any unused portion of this card in straight repair work would be the equivalent of handing him so much money, to which he is not entitled under the rules of good business.

Defective Parts Free

Section 7 states that labor on defective parts is to be free and handled apart from service. Obviously if a part is defective, the owner will not expect to pay for the labor in remedying the effect. Whether the charge for installing the part is to be paid for by the dealer or the manufacturer is a matter for adjustment by these two. Holding service to a minimum and handling labor and defective parts separately seems the most equitable arrangement. Were the service period to be made long, and the hours many, in order to provide for possible defective parts the owner would be disappointed in case no parts went wrong because he would have a very large balance of unused labor hours.

Section 9 provides for a full and clear

Try This Service Plan

On a car selling at \$1,000 this service plan will mean:

\$1,000 means 20 hours of free service.

At a cost of 50 cents to the shop per hour this means \$10.

\$10 is 1 per cent of the gross price.

\$10 is 5 per cent of the profit in case the discount is 20 per cent.

If the cost of labor (to the shop, not the customer) is \$1 an hour the service will cost \$20, which is 2 per cent of the gross price and 10 per cent of the profit.

- 1—Approximately 1 hour of free service for each \$50 of list price of car up to 35 hours.
- 2—This service to be given by a service card in quarter hours. Time to be punched out by service department when work is done.
- 3—No punch to be for less than 15 minutes.
- 4—Service card to cover only reasonable demands, such as adjustments and inspections.
- 5—All materials, such as grease and oil, to be charged for at regular rates.
- 6—Card is NOT to be applied to repairs or materials in case any portion of the card is not used. It is a provision for emergencies, NOT a gift of labor or a cut in price.
- 7—Labor on parts that are replaced as defective by the factory to be free and handled as a separate matter from service.
- 8—Card to expire 30, 60 or 90 days after purchase of car, whether used or unused.
- 9—Card to be fully explained to buyer and to carry a printed explanation on the back of the card.
- 10—When the 30, 60 or 90 days are up all free service ends.

NOTE—It is suggested that each dealer who uses this plan work as close to the minimum as his past business practices will permit. For instance: This plan mentions 35 hours as the maximum. It is better to make the maximum 20 hours if possible. This plan suggests time limits of 30, 60 or 90 days. It is best to use 30 days if the dealer can do it. From year to year the service should be cut down until it reaches about 20 hours in 30 days.

explanation, and it is suggested that the back of the card carry some such message as this:

The Explanation

"We want your car to give satisfactory operation and wish to advise you whenever you believe we can be of assistance. In order that you may feel that you are not presuming on our time in asking us to make inspections and adjustments, we are issuing this service card with Car No., Engine No., which you have purchased this day of

"This card covers only inspections and adjustments and not ordinary repairs such as may arise through operation of the car.

"Our experience has been that every owner becomes an experienced driver in 30 (60 or 90) days, wherefore this card is issued to expire on the day of

"Whenever you wish advice, inspection or an adjustment, bring your car with this card to our service department. Our service men are instructed to give this service without charge to holders

of cards. Unless the card is presented they will be required to charge for the service.

"Please keep in touch with us and permit us to assist you in getting from your car the large value that we believe is in it."

Section 10 provides that when the period is up all free service ends. This is

a most important section of the plan because the whole thing becomes pretty much a farce unless there is some clear definition. One of the great troubles with present day service is that it is so flexible and elastic that it amounts to having no plan at all.

In order that readers may get through first-hand information the sentiment on

this question as it exists among the largest and most successful people in the car selling field there follow reprints of their letters on the subject. Inasmuch as many of them were quite free and personal in their remarks, names are omitted. Printed elsewhere are some of the service forms and cards used by some of these dealers.

What 14 Big Dealers Said About Restricting and Defining Service

Dealer No. 1

Would Grade Service

Answering your favor of Nov. 21 as to service rendered on cars sold, we believe that it would be possible at this time and perfectly in order to specify a certain number of hours free service that would be rendered on the sale of every car.

I believe that twenty hours free service on the sale of a car under \$1,000 and above \$500 would be a fair proposition to the distributor or dealer and also to the man buying the car; this service you understand to be rendered by efficient mechanics and by garages that are equipped to do the necessary work quickly.

Under \$500 I should say ten hours work free would be plenty.

On cars selling above \$1,000 I believe twenty-five hours would be a fair estimate. By making a certain number of hours guarantee for work, a dealer would be in position to estimate his exact cost of service, for a certain period covering a certain number of cars sold, and it would put him in better position to judge where he was going to land at the end of the year, than the present practice.

I do not believe you can sell a man an article running into the money that automobiles do without giving some free service. I do believe, however, as our Kansas friend evidently thinks—NOW is the time to make a ruling that would be adopted in time by all the dealers all over the United States, a policy on free service, and we would recommend the above as a basis to work on.

Dealer No. 2

35-Hour Card

I wish to acknowledge receipt of your favor of Nov. 22 regarding the matter of free service on automobiles. It would certainly be a great boon to all automobile dealers if this matter of service could be eliminated, and it certainly would greatly help their battling average from profit and loss account, although I do not feel that it would be good policy to discontinue this entirely.

We have given the matter of service considerable thought in the past four or five years, and have finally boiled it down to a thirty-five hour service card which we issue upon the sale of the car. This is divided into sections of fifteen minutes, and each time the car is brought in to have anything done, whether it is ten or fifteen minutes, fifteen minutes is punched out of the card. This card expires by its own limitation, six months from the date of sale, and if the card is not entirely used up, the remaining amount is allowed to apply on an overhaul job, providing it comes within the six months' period.

We keep a duplicate of this card on file at the service station, and whenever work is done, the customer's card is punched, and the card in our file is also punched, so when one is used up they have both been completely punched.

If it could be brought down to a point where the service could be limited to thirty-five hours, I do not think this would work any great hardship on any distributor or dealer, providing each get full price for his cars.

Of course, we do not issue these cards to any purchaser, except those purchased through our retail department. We do not furnish any service on cars sold to our dealers, as they have to assume that burden. We credit our repair department with fifty

cents an hour, or in other words, \$17.50 on each car sold at retail, so that the expense of service is a part of our biggest overhead.

I would like very much to know what other distributors' angle on this service proposition is, and would be very glad to learn of any better method than which we are now using.

How Do You Like IT?

Read carefully this story of restricted and defined service. Adjust it so it will fit your business, then write to Motor World and tell us what you think about it. Please let us have comments on this highly important subject.

Dealer No. 3

Tried Coupon Book

I beg to acknowledge receipt of your favor of Nov. 22 on the subject of "Free Service"

The writer is of the opinion that the utter inability to make the retail purchaser understand the difference between "service" and actual maintenance of his car makes it very difficult to offer a service plan that will be understood alike by the owner and the dealer. This misunderstanding leads to numerous disputes regarding bills and loss of friendship, even when the dealer is trying to give certain definite service to his customers.

We have been trying for many years to perfect a plan whereby we could take care of our customers on those things on which they are entitled to free work, and year by year we have seen the customer demand more and more, utterly ignoring the actual outlay on our part to render this service; and after we have rendered all of the service agreed on in the sales contract the customer would come back and demand still additional service under the plea that the car should never have done this, that or the other.

Our plan has been to give a coupon book, good for a stated number of hours of service per month. We have made these coupons good with various garages and dealers, so that the customer had the privilege of having his car repaired at more than one hundred places in and around this city. I have recently circularized all of our owners, and, frankly, found that very few of them were willing to go on record as being at all satisfied with our service, although we had spent many thousand dollars in taking care of retail purchasers' cars.

It is almost impossible to define what free service should be, and I, personally, after many years trying out various liberal service policies, am inclined to the belief that we should extend to purchasers of automobiles the same guarantee that is given us by our respective factories.

If the customer exacts labor and time in addition to this guarantee, we should collect for it, as we certainly have to pay our workmen, and the service policy is something which has been almost altogether placed on the shoulders of the dealer, even the most liberal factories considering that they have

met their obligation when they replace to us material admittedly defective, and any dealer knows that many, many times the cost of these parts is consumed in shop labor in taking out the old parts and putting in new ones. This is an actual cash outlay and represents a goodly portion of the profit we make on automobiles. If we did not have to spend this money in this way, we could even sell less cars and make a greater profit.

We find the customer turning in an old car on a retail deal has no conscience whatever with reference to the condition of the car which he turns in. It is short all kinds of equipment and tools. It requires a good deal of overhauling on our part before we can pass it on to a purchaser. There are a thousand and one items we have had to take care of on our second-hand cars, but on the other hand, the purchaser demands each and every single individual article that goes with his car. He will not accept a car that is marred, scratched or defaced in any way and he certainly would not take it short of tools, curtains, top or any of the other equipment. He washes his hands of the old car the minute he induces us to take it in trade, and then in return expects us practically to maintain his new car just as long as his conscience permits him to insist on this maintenance.

This is unfair to a great many of our customers—some of them are reasonable, take good care of their cars and require very little service; others are impossible to satisfy, and if their demands are met, we would have to return them about \$1.25 for every \$1 profit they would permit us to make on the car.

Therefore, I am decidedly in favor of selling good cars, made by responsible companies and selling them under the factory guarantee, and if the dealer is to give any service, he gives "paid service" and not free service.

Service does not mean free work. The fact that we have facilities for promptly taking care of troubles on our car, carry a stock of parts and have men who are skilled in looking after our particular product, is "service," but in the mind of the average automobile dealer the word "service" means something for nothing, and it is this one feature that makes anything approaching free service impossible.

We get service in a great many other lines of business, but it is seldom indeed that we ever get free service. We pay for service on a Pullman car, we pay for it at theatres, and we pay for it in practically every other line of business—except the automobile business.

Therefore, you can put me down as being one of the distributors who thinks that the word "service" has been grossly abused and that it is high time to come to a better understanding between the dealer and the owner on the question.

Dealer No. 4

Likes the Dodge Plan

I wish to say in regard to service that we handle Dodge Brothers line, on which we give practically no free service. I am enclosing a book, "True Service," put out by Dodge Brothers, and we live up to the letter of this guarantee.

Now in regard to Hudson cars—commencing Jan. 1, we shall give the regular Automobile Chamber of Commerce guarantee which reads ninety days, and in addition to this provision in that contract, we shall agree with our Hudson owners to replace free of charge all parts that may prove defective within ninety days; this to include free in-

L. J. Robinson's Service Agreement

It is the desire of the L. J. Robinson Company that every individual purchaser shall receive an equal amount of courtesy and attention in our service department.

For a period of thirty days immediately following delivery of a new car of standard make, thorough instruction will be given in the care and handling of same, and such minor adjustments will be made as are fair and reasonable. All parts that may be replaced as defective by the manufacturer under the standard warranty as stated in the manufacturer's catalog, will be installed without charge for labor for a period of thirty days from the date of delivery. After such time all work will be done in a careful, workmanlike manner and the regular charges made for same.

Vendor and vendee both agree that the above comprises in full the entire agreement between them covering or pertaining to this sale and the service to be rendered and that no agreement of any kind, verbal understandings or promises other than those embodied and specified herein shall be understood to exist.

stallation and transportation charges. At the end of ninety days our guarantee will be completely over and nothing further will be given in the way of free service.

This, we believe, is as far as we can go. We, like your Kansas City distributor, should be delighted to "cut out" free service, but as we have built this business on liberal treatment of our customers, we cannot see our way clear to tighten up to the extent suggested.

Dealer No. 5

Suggests 10 Hours

In answer to your letter of the 21st, will say that I am in hearty accord with your Kansas City friend. I certainly would be delighted to feel that the time would come either now or in the near future, when it would not be necessary to give some free service to the automobile purchasers.

Until the automobile manufacturers install better final inspection departments, however, I feel that if we were to cut off our free service we would be doing an injustice not only to our customers, but to the automobiles we handle. For, with the ordinary run of cars as we get them from the factory, there are a number of little adjustments to be made, adjustments that should be made before the car is finally turned over to the customer.

You will probably argue that we ought to make these adjustments before we deliver the car. There are, however, a good many reasons why this cannot be done advantageously, the chief one being that the car has got to be run before you can know what adjustments are necessary. You can't run tires on pavements without showing wear and while I would like to get away from free service, I believe it is necessary that we continue to give some free service—I should say approximately ten hours until the factories make the correction suggested.

There are many methods of arranging how the free service should be given. We have tried it out in different ways, but we find that from our standpoint the most satisfactory method is to give a specified number of hours.

Up to two years ago, we gave fifty hours of service on the sale of each new car. Two years ago we cut it to thirty hours, and I can see no reason why it should not be cut to ten hours now. With the exception of the few exaggerated cases, ten hours will cover any little trouble that may develop in the average new car.

I agree with you absolutely that the time is opportune to make this change if it is to

be made. I will be interested in learning from you at an early date just what the consensus of opinion is. I would like to take the matter up at the next meeting of the association, because if we are to make any change it should be made on the first of the year.

Dealer No. 6

Monthly Inspections

I am particularly interested along this line and will therefore endeavor to outline what we are doing here.

When we sell a new car we give with same six monthly inspections which are free of charge to the customer. These inspections include a thorough greasing and oiling (oil in crank case and transmission not included), the filling of all grease cups, the removal of squeaks and general adjustments. Additional service performed during the month, such as timing valves or ordinary adjustments are made free of charge.

Then there is another class of free labor, that is, trying to rectify the mistakes made by the manufacturer. It is sometimes necessary for us to put in a tremendous amount of time to overcome some mistake which has been made by the manufacturer in the construction of the car.

I have been at a loss to determine just how far we should go on such expense. If the car is wrong I have felt that it was our duty to put the car in shape if possible to do so. In some cases the manufacturer will stand a portion of this expense and in other cases they refused to do so, and it is therefore up to the dealer.

In my opinion it would hardly have been just to charge a customer with something for which he is in no way responsible, and from my experience in the automobile business I cannot see how it is possible for us to avoid making such corrections, that is, providing we want to continue in the business permanently, for it is a satisfied owner that sells the car. If the factory mistakes are not remedied the owner will soon trade his car for something else.

I will be greatly interested in reading your articles on this subject as I believe it is a subject which is bothering nearly every dealer and something which I believe should be handled alike by all dealers.

Dealer No. 7

Satisfaction the Key

Your letter of Nov. 21 at hand, asking if we were in favor of the policy of no free service, and in reply to same will say that we are not of this opinion, as the public at large are not mechanical and the automobile unless it had a "guiding hand" in the way of free service until the owner became familiar with it, would have very little if any chance to make a satisfactory showing to the owner.

Our policy in regard to service will not be changed and our slogan in this respect is: "A satisfied customer," which constitutes our service proposition.

Dealer No. 8

Define It!

Have your favor of the 21st, and replying will say that inasmuch as we devote all of our energies to the wholesale business exclusively, we are not in position to cover the field very thoroughly along the line you suggest.

It is our opinion, however, that if the matter of service were correctly defined so as to cover only such service required by reason of improper adjustments or matters of that character, then the term would not be misabused. We do not believe that service should extend to the 101 things that seem to be thought necessary by some retail dealers any more than the same service should be required of any other kind of merchandise.

Therefore, if some universal definition of service could be determined, believe the matter would then be very easy of settlement. If not, however, believe that the proper arrangement would be to confine the service absolutely on the basis of the guarantee as laid down by the factories themselves.

Dealer No. 9

Free Service Under 30 Min.

Your favor of November 21st received. We, as well as all other distributors, naturally do not like the policy of free service. However, we have been working on a proposition that has appealed to us, and we think has

The Dodge Definition of "True Service"

This plan constitutes no free service and is enthusiastically indorsed by a number of dealers who use it.

Minimum first cost and minimum per mile operating cost are the essentials most sought after to-day in the selection of a high-grade motor car.

It is universally conceded that a Dodge Brothers motor car at \$885 (f. o. b. Detroit) has established a new standard of motor car value.

And as for maintenance cost, it is literally true that gasoline, oil and tires are practically the only expense. In normal service the parts rarely have to be renewed.

Dodge Brothers have chosen to build into their car those qualities which have made it practically immune from the need of service on the part of dealer or factory, except such service as may be caused by the owner's abuse or neglect of the car or by normal wear after long use.

Thus the purchaser pays \$885 (f. o. b. Detroit) for the car only, and buys and pays for service only when it is needed.

Before a Dodge Brothers car is shipped from the factory every precaution is taken by over 400 inspectors of individual parts, unit assemblies and finally the car complete, to insure that all material and workmanship is up to the required standard and to make certain that the car is in proper running condition.

We, as dealers, also test each car received by us to make sure that it is in the same condition as when it left the factory.

Therefore, after we deliver the car to our customer in good running order, service rendered by us is properly chargeable in accordance with the ninety days' standard warranty of the National Automobile Chamber of Commerce under which Dodge Brothers cars are sold.

increased our sales. Here is an outline of our policy.

When we sell a car retail, we replace all defective parts free of charge to the customer within a period of ninety days, after which time all labor on said parts are charged for. If the factory replaces the parts, we in turn replace it with the customer, but in no event do we stand any labor after ninety days.

Now as regards free service; we are glad at all times to accommodate our users with minor adjustments free of charge. So, therefore, we make no charge for any work on our cars, no matter how long they have been out, that does not require over thirty minutes. We find that this thirty minutes free service takes us in close touch to our users, keeps cars in better shape, and enables us to get from our present users a large list of prospective purchasers.

We have in the past records of the amount of time consumed in this free service department of ours and find that the users are in about twelve minutes average, that is, in other words, the average time of one free job is twelve minutes. And at the present time we are working in our free service department a salesman, who, not only is able to trade in many of the cars of our present users, but as stated above gets some very good prospective purchasers.

Of course, we would like to sell our cars and be through, but we think that this free service of ours is a necessary evil. However, if you have any suggestions, or any other dealer has any suggestions that will better our service department, we would like to hear it.

Many thanks for sending us this letter, and assure you that at all times we will endeavor to co-operate with Motor World.

IN DUPLICATE

Greenlease Motor Car Co.

KANSAS CITY MO. 64111

GENTLEMEN:

PLEASE ENTER BY ORDER FOR ONE CADILLAC MOTOR CAR TO BE DELIVERED ON OR ABOUT _____

MODEL _____ STYLE _____

WITH STANDARD EQUIPMENT. F. O. B. KANSAS CITY. PRICE _____

REMARKS: _____

Amount of deposit paid on this order _____

Balance to be paid when car is ready for delivery _____

This order when accepted by the company shall constitute the entire agreement between the parties.

Business Address _____ Phone _____

Residence Address _____ Phone _____

Businessman _____

Accepted by _____ over

GREENLEASE SERVICE POLICY.

Our service is guaranteed for the purpose of assisting owners of Cadillac cars to receive the excellent results which their cars are capable of giving. To this end we offer a free monthly inspection for the first year. At our Service Department. This includes the inspection and lubrication of all mechanical parts of the car. A charge will be made for materials used.

Customers will be notified several days in advance of the day allotted them for this inspection.

Following inspection, the owner will receive a detailed report advising conditions of car and recommendations made for any work that appears necessary, and not covered by these inspections.

We do not under any circumstances, by reason of these inspections, accept responsibility for accidents, breakage or damage.

It is our intention to give you and every purchaser of a Cadillac Motor Car, fair and business-like treatment. Should any patron not receive such treatment, we ask in all good faith to be so advised.

TERMS: Strictly Cash, but in order not to inconvenience our patrons, we render-invoice which we expect to be paid upon receipt.

CADILLAC WARRANTY.

We fully guarantee new Cadillac Motor Cars to be free from defects in material and workmanship for ninety days from date of delivery to purchaser.

We will replace free of charge any part claimed to be defective within ninety days from delivery of motor car to purchaser, when such shall be determined to be defective, and which upon examination we shall find to be defective.

The free replacement of a part or parts, does not include transportation charge to and from factory, and the charge of installing the new part.

Tires, time, batteries, speed instruments and other accessories are not covered by this warranty, they being subject to warranties of their respective manufacturers.

The Greenlease Service Agreement is printed on the back of the sales contract!

Dealer No. 10

Define It!

I do not think that the automobile retail business can be successfully run without giving some free service; for, no matter how good the car is that you sell, there are times that serious defects show up on account of carelessness in manufacturing, which must be taken care of by the dealer; and, if he charges the customer for this work I do not think he will go far in furthering the interests of the manufacturer or in selling machines.

I do believe, however, that anything along the line of restricting the free service given with new cars or better defining to the customer just what is covered by the free service would be a good policy at the present time.

As you may know, for a number of years I have given a definite number of hours of labor with every car sold. On a whole, the plan has been successful; and yet I feel at times that it does not fill the bill, for it would seem that we give away more than is necessary on certain cars.

If the factory built a car perfectly and it went out and gave the owner perfect satisfaction, it seems as though the dealer should have the benefit of this, but with my plan we give the service without any limit; consequently, there is so much money spent for every car sold. It seems to me, in defining a plan of service to be used nationally by all dealers, that it could be done by listing definitely the adjustments and repairs that would be covered by free service and then set a limit of say three months, which would conform to the average manufacturer's guarantee of parts.

This plan would protect an owner to the extent of being able to get his car into perfect adjustment without additional cost to him and would also be a protection for three months on breakage of parts, due to defects in material or workmanship. It wouldn't take very much time to define this service and get out the printed sheets, which could go to every customer purchasing a new car. If service throughout the country could be brought to a definite proposition, I am sure it would help dealers wonderfully and mean a big saving in the end.

Dealer No. 11

Has Defined It!

I am wondering if your letter of Nov. 21 is the result of thought transmission. Since

last Monday morning, the writer and his business associates have devoted a great deal of time on some changes in our service policy along almost the identical lines you have written us about.

The discussion has been a general one inasmuch as I called in all the thinking members of our service, sales, both retail and wholesale, and auditing departments for their different and several opinions. I was much surprised to learn that the strongest champions in favor of less free service and a more restricted and conservative service policy were the executives in our retail selling department and the retail salesmen themselves.

I am taking the liberty of enclosing with this letter our new service policy as finally adopted yesterday.

You will find this rather short from the fact that our new plan calls for the enclosed statement to be printed on our order blank so that in signing an order for the purchase of a new car, our customer also signs his acceptance and acquiescence of the service agreement between the vendor and vendee.

You will understand that in the past our service policy as regards free service has been extremely liberal and quite flexible, and it is the opinion of our selling force that a great amount of free service offered by a dealer has ceased to be as important a factor in the closing of a sale.

You will readily see that printing this very conservative policy on our order blank and making it a part of the agreement between the dealer and the purchaser entirely eliminates the possibility of false promises on the part of the salesmen, gives the purchaser a definite understanding of what we intend to give all of our customers, and gives us the added advantage of receiving just and due credit from our customer when occasion necessitates our doing more for him than as outlined in the agreement.

I am sorry to have made this letter so long, but your letter came at a very opportune time, inasmuch as this very thought was uppermost in our minds and I have tried to give you our entire thought in the matter.

Dealer No. 12

Giving Away Too Much

I am in receipt of your communication of the 21st. I agree with your Kansas City distributor and I think it is not only the time but it is fast becoming a necessity. At least I find this is our big trouble. We are giving away too much.

Our policy is somewhat of a split one, hav-

ing two lines of cars. As you know, I handle the Dodge car which maintains a fixed policy all over the country of NO FREE SERVICE. We are expected only to deliver the car to the customer in satisfactory running condition. After that, if there is any labor necessary, the user is supposed to pay for it, and their guarantee for parts is for ninety days only.

Now, personally, I believe that Dodge Brothers have hit the nail on the head. If all manufacturers would establish the same policy and hold rigidly to it, the same as they do, the dealers would be a whole lot better off, and the customer in the long run would be better off.

Dodge Brothers cars are priced and discounted to the agent with the idea in mind that there is no free service.

On our other line, the —, we are giving a fifty hour coupon book and, of course, their guarantee is for one year on parts.

We do, however, hold rigidly to all repairs being cash, which, of course, causes some trouble, but we are gradually educating our customers.

We have just completed one of the largest service buildings of the Northwest and we hope to develop this service business to a point of showing a profit instead of a loss. I find most distributors think that they have a profit on their service end, but instead they have a good big loss if the department were carrying its just overhead expenses.

This is a subject that I am mighty interested in, and will very much appreciate your views on the proposition and what the verdict is.

Dealer No. 13

Up in the Air

It has been the writer's belief that we have been selling service rather than automobiles for quite a number of years, and seems to me that we have gone so far in this that it is almost impossible to turn back at the present time.

I believe this is the only industry or manufacturing product where the service is thrown on the merchant's hands and left to him to take care of. The manufacturers will furnish the parts at the factory and you are supposed to do the work. The parts end of it is a very small percentage of the trouble of service in automobiles to-day.

The work should be up to the man who manufactures the car as he should build them and put them on the market in such condition that they should stay there. I do not blame the man who buys an automobile for expecting you to do things a certain length of time, but there is no doubt but that this is taken advantage of in a great many cases; that is, as in most all business the men who pay their bills and do it promptly are paying for the men who keep you waiting and perhaps never pay.

If a man would buy an automobile or any part of an automobile without any guarantee with it he could buy it a great deal less than he does now and the manufacturer would be a great deal better off. It is service that costs more than the original article.

To suggest any better way out of it would be a good deal like trying to arrange some way that would suit everybody on the second-hand end of our business. We have tried this and it has not worked out and the guarantee now runs anywhere from nothing to two years. There is no set time. Some manufacturers will give parts for a car that is two years old if they know the parts have been defective in the past, and others will make a great time on living up to the ninety days, which is agreed to by all manufacturers.

Manufacturers have this understanding of ninety days' guarantee in their association but they don't stand to it any more than a second-hand man does on the used cars.

We would like to suggest something that would be possible to make this more like other legitimate business, but it seems to be on the road now to "every man for himself and the one who can hang out the longest and give away the most will be the longest lived."

No doubt your movement is a good one and I feel very sure that you will get a good many very good suggestions. Time service here has been tried and given up on two or three occasions.

In selling high-grade cars where a man has a first-class chauffeur you find the time given very little and the same kind of thing under the care of the owner may be in your place enough to eat up all the profits if you give him what he thinks he should have.

The writer will be interested to know how he could give you a better idea, and should have done it on my personal belief of the sit-

uation, if it had not been that I took it up with our association the day after receiving your letter and found every man had a different idea of the way to service cars, and believed the only way to do it was to let each man fight it out in his own way.

Dealer No. 14

Replying to your letter of Nov. 21, we are of the opinion that entirely too much free service goes with the sale of a motor car. We have tried to cut this down by giving monthly inspection, and am inclosing herewith an outline of our policy, together with an inspection report.

The only charge that is made on inspections is for oil and grease used. If there is any other work necessary on the car, a separate charge ticket is made out for this work, such as burning carbon, tightening bearings, or anything not covered by the general inspection. You will see by this method that we limit the gratis work on a car.

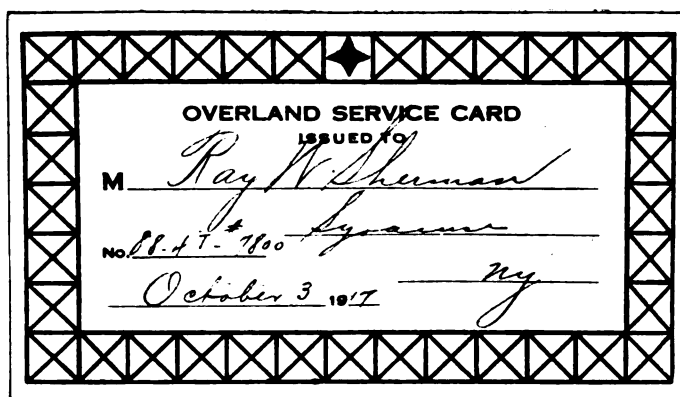
We have been seriously considering reducing the inspections to six or nine, instead of twelve. This would save us considerable on a year's business.

We are at the present time contemplating the erection of a new service and sales station where we will be equipped to make a number of inspections, on which we expect to make a charge; that is, after the owner has been given the number of inspections outlined in our contract.

We find that these inspections and oiling are important to the successful operation of the car, and furthermore, a car that we have traded in that has had the regular monthly inspections since it was delivered, brings a considerably higher price than one that has not had these inspections.

We hope that we have given you the information desired, and with kindest personal regards, we beg to remain.

THIS SERVICE CARD is issued by the Overland Syracuse Co., Syracuse, N. Y., of which John W. Lee is president. Each square is an hour, divided into quarter hours. There are 35 hours. The card is in duplicate, one being kept by the service station and punched whenever the owner's card is punched. The back of the card says: "This card, properly signed and presented at the Overland Service Station, entitles the owner to 35 hours free service on Overland or Willys-Knight automobile bearing serial number 88-4T-No. 7800 and is issued with the intention of furnishing a definite period of time in repairing and adjusting, at the end of which the owner should be



sufficiently familiar to accomplish. Not transferable and expires by its own limitation April 3, 1918."

Get the Cash

Read page 11 and see how the idea
will fit your business

Plan—Then Act

An editorial by George Harrison Phelps, director of advertising of Dodge Bros., Detroit

THERE is as much difference between planning and doing as there is between winning and losing. Merely to plan is merely to dream, and to dream without transforming your mental visions into living, potential realities is to hit your own business below the belt.

Follow up your plan with action. The world always respects a man who *acts* because he displays *control over crises*.

Charles H. Crasty was publishing the Baltimore *News* back in 1904 when the big Baltimore fire occurred. His plant, with other millions in business property, was ruined. A cellarful of twisted iron and steel was all that remained of the magnificent institution at 9 p. m.

Long before the flames had eaten away the stalwart walls, Mr. Crasty was on one of the few remaining telephone wires still in operation, arranging to publish temporarily on the premises of the Washington (D. C.) *Post*. And at midnight he was on his way to New York. Immediately on his arrival there he telephoned to Adolph S. Ochs, owner of the plant of the Philadelphia *Times*. The *Times* had been merged with the *Ledger* and the plant was lying idle. The conversation lasted just thirty seconds. As told by Jerome P. Fleishmann it was substantially as follows:

"Hello. Is this Mr. Ochs?"

"Yes. Who is it?"

"Crasty—the Baltimore *News*."

"Where are you?"

"I'm in New York."

"Awfully sorry to hear of your loss."

"Everything has been destroyed in Baltimore. How about Philadelphia *Times* plant?"

"That plant is at your service."

"What's the price?"

"Go and take it, and if you and I can't agree upon a price later, why we'll leave the matter to a third party."

"Thanks. That's satisfactory. I'll take it."

Ten minutes after this conversation was concluded arrangements had been made to pack and ship the *Times'* machinery and accessories to Baltimore, where, while the fire was still raging, Mr. Crasty secured an option on a large building beyond the danger zone.

In two weeks the *News* was being printed in its own temporary quarters. And there, too, were being printed the editions of a morning contemporary that had also been burned out. The *News* did not miss an issue.

Mr. Crasty is the type of man who thinks and acts.

Had he only dreamed and "planned" he would have been listed simply as "one of the many who lost." As it was, his action was the talk of the newspaper world for months. Even to-day it strikes up a note of admiration among reminiscent editors.

Think of yourself in Mr. Crasty's place. But don't sit and wait for the test of fire. Carry his example into your daily work. Carry it back into those parts of your business that you are ashamed of. We all have them.

Follow up your plans with action.

Get the Cash!

IN its issue of Dec. 12, in a story on "Get the Cash," MOTOR WORLD suggested a letter to be sent to customers calling their attention to the change made in the business of the dealer or garageman. This letter has been used with success by a number of readers. It is printed again on this page, with several other letters and comments from readers. Again, the suggestion is made that readers get on a cash basis, or one of very closely restricted credit. Every dollar that you collect from your customers when goods are sold is that much more money added to your capital. It costs you money to carry an open account business.

The letter at the right was printed in Motor World Dec. 12. When it was used by Clinton H. Kenyon of Kenyon's Garage, New London, Conn., he inclosed with it one of the Christmas cards that were sold this year by Motor World. The letter and the card made a fine combination.

What Newark Did

The New Jersey Automobile Trade Association passed a resolution recommending that members go on a cash basis. The resolution was printed in red and blue and hung up in shops and offices. The secretary, Claude E. Holgate, sent the following letter to the members:

Newark, Dec. 17, 1917.

TO OUR MEMBERS:

The resolution printed on the inclosed card was passed by your Board of Trustees at the meeting held Dec. 5. It is in keeping with the policy of the association to do what is best for its members, and it is essential that, at this time, in particular, that the members have the fullest co-operation from one another.

Every member should at once prepare a letter to be sent out during the next few days to every one of his customers, advising him of the necessity for the change in business policy, and calling attention to the fact that the date set for the change is Jan. 1, 1918.

Several of the members have already had this system of cash payments in force for many months, and they have found their customers are willing to co-operate with them when the situation is explained to them.

We all want to co-operate with the Government to the fullest extent; capital must be kept in motion if the financing of the war is to be successful, and you will find that your customers will be just as ready as you are to DO THEIR BIT.

Send your letter out at once. There is a very good sample letter on page 7 of the Dec. 12th issue of the MOTOR WORLD. If you haven't a copy of this issue, you can see one at the business branch of the Public Library on Beaver Street, or here at this office.

Then hang up the inclosed cards in conspicuous places in your establishment—one in your office, and others in your showrooms, shops or other places where likely to be seen by your customers.

Point it out to them.

If there is any help we can give you from this end, do not hesitate to command us—that's what we're here for.

Yours very truly,

N. J. AUTOMOBILE TRADE ASSOCIATION.

C. E. HOLGATE,
Executive Secretary.

Here is a letter used by the Carrollton Motor Car Co., Carrollton, Ohio:

Due to our own small capital and to the tightening of credit by manufacturers and jobbers, beginning Jan. 1, 1918, our business will be conducted strictly on a cash basis.

No, this does not mean that we do not consider your credit good. It means that we consider your credit very good. So good, in fact, that you are able to do a cash business with us. To you this may seem radical; a change you will not be able to meet. It is, however, quite the reverse. It is merely a matter of becoming accustomed to the change.

We all know that if we didn't have bills to pay that we would get along a great deal better. We go somewhere, make a purchase, and have it charged. There we have a bill. We make another purchase, and still another, and so on until we have a big bill.

Send This Letter to Your Customers

You wish to assist the business world, we are sure, in keeping things running on an even keel. This will be best for you, and for us, and for the nation as a whole.

If business can be kept going at its greatest efficiency prices will remain more stable, money will flow to and fro between buyers and sellers and business will run along in a pretty even way.

We have investigated our business from many angles. We have considered the advisability of raising prices, of changing our organization in various ways, and have concluded that the raising of prices is something we should not do except as a last resort.

We have found, however, that our expenses are greater than ever before and that we are working our capital to the limit. Adding capital would only serve to make our expenses more.

But we can make conditions much better if we may alter our credit business. If we may do without the accounting necessary when our sales are on credit it will mean a great deal to us in our effort to maintain our past service at present prices.

This is not a reflection on the class of credit we have had. It has been good and we have been glad to have it, but every time we charge up a dollar on our books it costs us money. Instead of asking you to pay higher prices we are going to ask you to pay cash at the time you buy.

This new plan will become effective January 1. We are sure you appreciate our object and will be glad to co-operate with us.

We appreciate your patronage of the past and hope it will be continued.

Very truly yours,

Big bills are hard for us to pay. Why not eliminate these big bills by paying as we go? By paying cash we always know just where we stand. We have no cause for argument about items in our accounts because we have no accounts.

Our prices will be adjusted to render you an increased saving by paying cash. Our service will be improved and with our new building giving us a larger amount of room we will be in a better position to care for your trade. There will be no favoritism shown; everyone will be treated alike, so if you don't ask for credit after Jan. 1, it will be unnecessary for us to refuse it.

We wish to thank you at this time for the business you have given us in the past and hope that we will continue to be favored. We know YOU will like this method of doing business.

Yours very truly,

CARROLLTON MOTOR CAR COMPANY.

Standardize All War Truck Repair Work

Standard Method of Doing Every Repair Job— Buildings Standardized, Too, as Are All Tool Kits

WASHINGTON, D. C., Dec. 29—In line with the general plan of standardization pursued by the transportation division of the Quartermaster Corps under direction of General Chauncey B. Baker comes the new plan of standardization of repair base units for service at home and abroad, by means of which there will be standardized repair shop buildings, standardized corps of mechanics, standardized systems for repair and standardized repair equipment.

Following beginning of production the B heavy-duty war trucks and completion of designs of the A and AA sizes, the Military Truck Production Board started on its work for the maintenance of the trucks in France. George C. Randles, in charge of the manufacturing equipment, together with James F. Bourquin, head of the production work, made a thorough investigation of truck repair on the Mexican border, learning the achievements and the errors of the past. They found some shops excellent, others not so good, with the chief problem that of the inefficient soldier mechanic, soldier foreman and soldier superintendent, who were found among the many soldier mechanics, foremen and superintendents at work.

Many repair jobs were found to be wrongly handled because of ignorance, others because of different opinions between mechanics, and still others because of inferior machinery and tools. The result was the decision to standardize insofar as possible.

Buildings to Be Standardized

The repair base units have been planned on standardized lines. Each average building will have 230,000 sq. ft. of floor space. All buildings will be exactly alike with stock rooms, tool rooms and racks the same in each. And the general plans for these buildings are so arranged that in event the building should be made larger or smaller the change in the plans can be made within a very few minutes by adding or taking away the number of bays required, without affecting the efficiency of the plant. These plans also include consideration of light, heat, power, etc., which can be increased or decreased at will along similar lines.

The value of this plan lies in the fact that where workers are taken from one plant to another they can at once enter upon their duties without strangeness, knowing where to find stock, accustomed to the tool racks, used to certain methods which can be pursued equally well in the new shop. For example, the Quartermaster Corps is now building a large mechanical repair shop unit at Baltimore, where 2000 mechanics will work on the trucks coming overland from the factories to the seaboard. Construction of this plant and also of the warehouse which will adjoin it and serve as a commissary to the trucks began this last week. Completion is expected

in 90 days. If after these mechanics have been thoroughly trained at the truck repair work in this shop, the War Department decides to send them to France, it will be a simple matter. The men can be transferred readily and when they enter the shop in France will find the stockrooms, tool, machinery, light, power, laboratories, everything exactly as in Baltimore.

Manual for Repairs

The next standardizing step is that of rebuilding and repairing. There are certain fundamental principles of mechanics for this work, and the plan provides a system that insures that each mechanic will follow the proper methods. A book to be known as the Shop Manual is now being compiled which so definitely lays down the rules to be followed for repairs that it will be impossible for a mechanic or a foreman to use his own judgment. The plan insures uniform work at every base and on every job. Instead of depending upon the foreman to say, for example, that a cylinder is not in need of regrinding, the workers will turn to their manual, which strictly defines the cylinders that are out of round or tapered beyond good practice and definitely specifies the regrinding and the oversize, which is also standardized. This same applies to the crankshaft, where if the pins are egg shaped all must be ground to a certain undersize to clean up properly. In this way every job must be done thoroughly and there will be no opportunity for men to use individual judgment or to experiment at a time when experiment may mean a penalty of lives. The shop manual is now being compiled and will be completed in the near future.

All tools and machines are being standardized insofar as this is consistently possible with good judgment. All machine tools, for example, are standard belt driven because belt-driven machine tools are easier to secure than motor driven, because there is always possible the conflict of alternating and direct currents and of different voltages in the use of the motor driven, and because with a line-shaft drive if emergency demanded a gasoline engine could be attached and used efficiently.

All Tool Kits the Same

All mechanic's tool kits will be standardized, each mechanic of the different classes carrying identical tools, which will be subjected once a week to military inspection much the same as with the arms of the infantry soldier. This inspection will apply particularly to the finer tools, which have to be almost perfect to insure efficient results.

Thus between the standardized shops, machines, tools and repair instructions of the shop manual, every truck entering the shop for repair will proceed through exactly the same movements from entrance to exit that every other truck in its class will pass.

The standardization extends also to the mobile repair units, the trucks carrying small repair shops aboard for making field repairs. These will carry standardized repair tools and machinery and plans are now being made to perfect every detail of the repair mechan-

ism to the highest degree. For example, a large drilling machine in the original equipment has been eliminated and a small drilling attachment substituted that is more efficient, and the original lathes standing on two legs which were unable to withstand the shocks over the roads and usually resulted in lathes out of line, have been changed so they rest on a center pedestal over a cabinet, insuring firmness of position.

The numerous results of this system are quickly apparent. They include:

The making of good mechanics versed in the fundamentals of efficient repair work.

The elimination of the "hammer and cold chisel" sort of repair man, well known to the average motorist.

The training of men mechanically and with a discipline that will make them most valuable in civil life.

The elimination of all chance for experiments. Familiarity with shops and systems instead of strangeness with every transfer.

A repair system that insures maximum efficiency in the maintenance of the quartermaster trucks in France.

The average base repair unit is expected to hold 1163 men under the direction of a major.

The plan of organization of this general scheme of maintenance includes:

Supervision of standardization by George E. Randles, whose duties include provision for standardizing all buildings, power plants, stock rooms, warehouses, lighting, heating, plant transportation, manufacturing equipment and methods, together with various details connected with modern plants and manufacturing practices for the work to be performed and the compiling of all data necessary. He is being assisted by:

These Men Direct the Work

F. A. Barnes, industrial engineer of Cleveland, Ohio, whose duties include building design, building construction, cranes, power plants, water, heating, lighting and sewage.

D. C. Selheimer, production engineer, formerly with the Packard Motor Car Co. and the Hal Motor Car Co., who is working out the details of all manufacturing equipment, such as machine tools, small tools, mechanic's tools, shop transportation, arrangement of departments and manufacturing layout details. He will be assisted by Lieutenant Rogers.

Major North, who will provide complete plans and specifications for recommendations for procurement of various items; follow up purchases and maintain purchasing records.

Lieutenant Lord, who will work out the shop manual of standardized operations, together with parts lists and instruction books of the Class AA, A and B trucks.

B. H. Eaton, who is arranging details of plant systems, including tool cribs, warehouses, receiving, stockroom and shipping.

Major Parramore, an army officer, who will act in a consulting capacity. Major Parramore has seen active truck repair service on the Mexican border.

There will also be an additional department of employment to handle the induction of mechanics and the enlistment of those over the draft age.

All of the above work as outlined enters into the regular duties of the Military Truck Production Board, which has had charge of production and maintenance and which, as announced last week, also includes in its supervision now under Christian Gird, chairman, the direction of the engineering designs for all quartermaster engineering work.

A Notch a Day— 100% a Month

By Ray W. Sherman



"WELL," said Tommy Trumbull, as he rose from his desk after a busy forenoon and stretched, "it's a New Year, isn't it? Did you do your resolving early?"

"I didn't do much," replied Reilly, the Sennett dealer in Callawassa. "I have always been rather prejudiced against this making resolutions January first and then pigeon-holing them until the next January first. It always looked like bunk to me. It seems to me such practices only make a man worse. He is always starting for somewhere and never getting there. That breeds bad habits."

"I have always tried to keep myself checked up from day to day the year around—but I don't know—I think there are some things I ought to go at systematically this New Year's. Things have been changing so rapidly, our business has been skidding this way and that, I have had to dive into so much new work that I have become sort of disorganized personally. I am not working as well as I used to."

"We surely have had to spin a bit," agreed Tommy. "I've been all balled up a few times since last summer. I get a groggy feeling."

"The thing for us to do, I guess, is to sit back for a few minutes and give ourselves a good once over. I know I've been slipping. I've got to pull my efficiency back to par."

"How?"

A Little Every Day

"A little a day is about the only way I see for building a lasting increase in efficiency. This rushing from nothing to a hundred per cent over night isn't all it's cracked up to be."

"I know I've slumped badly in some respects. So I'll simply have to start pulling up again."

"Did you ever stop to think, Tommy, that if you make yourself three per cent more efficient every day it amounts to about one hundred per cent in a month? And that if you can keep that up for six months you are six times as efficient as you were when you began?"

"No—I hadn't."

"And do you realize what little things constitute three per cent efficiency? Supposing our hours are from 8 to 12 and

DATE	PERCENT
JAN 31	3%
" 30	3%
" 29	3%
" 28	3%
" 27	3%
" 26	3%
" 25	3%
" 24	3%
" 23	3%
" 22	3%
" 21	3%
" 20	3%
" 19	3%
" 18	3%
" 17	3%
" 16	3%
" 15	3%
" 14	3%
" 13	3%
" 12	3%
" 11	3%
" 10	3%
" 9	3%
" 8	3%
" 7	3%
" 6	3%
" 5	3%
" 4	3%
" 3	3%
" 2	3%
JAN 1	3%

EFFICIENCY

from 1 to 6. That's nine hours—640 minutes. Supposing you are 15 minutes late. Do you realize that that is about 3 per cent of your day? If you start coming in on time you become 3 per cent more efficient—even if you don't work any better than you worked before.

Things to Do

"And supposing you have been reading your mail as it came in and then reading it all over again as you answered it. It takes almost twice as much time. Now—if when you read it you make notes on the margins to guide your answer you have made yourself more than 3 per cent more efficient."

"If you have been doing repair work without getting your tools organized before you start you have a chance for much more than 3 per cent. If you have been wandering aimlessly around, physically and mentally, in your work you have a chance for many 3 per cents. If you have been one of these wait-a-minute helpers you have many possibilities. A do-it-now helper is worth several of the wait-a-minute variety."

"So, you see, 3 per cent is such a little thing. But a month of 3 per cents makes nearly 100 per cent."

It Counts Up

"If you will give yourself a good once over maybe you'll find quite a few chances. But you must give yourself a once over almost every day if you're going to do 3 per cent a day, for, unless you do that, your undone 3 per cents accumulate and then become too big a job for any one day. You get behind."

"Sometimes a plan like this will work. Sometimes it won't. Some people—and there are millions—can never get on their feet and reach after that first 3 per cent. If they could they would go after the next one—and the next one—and then there wouldn't be so many people in the world who say they never had a chance."

"Tommy, did you ever read Russell Conwell's 'Acres of Diamonds'?"

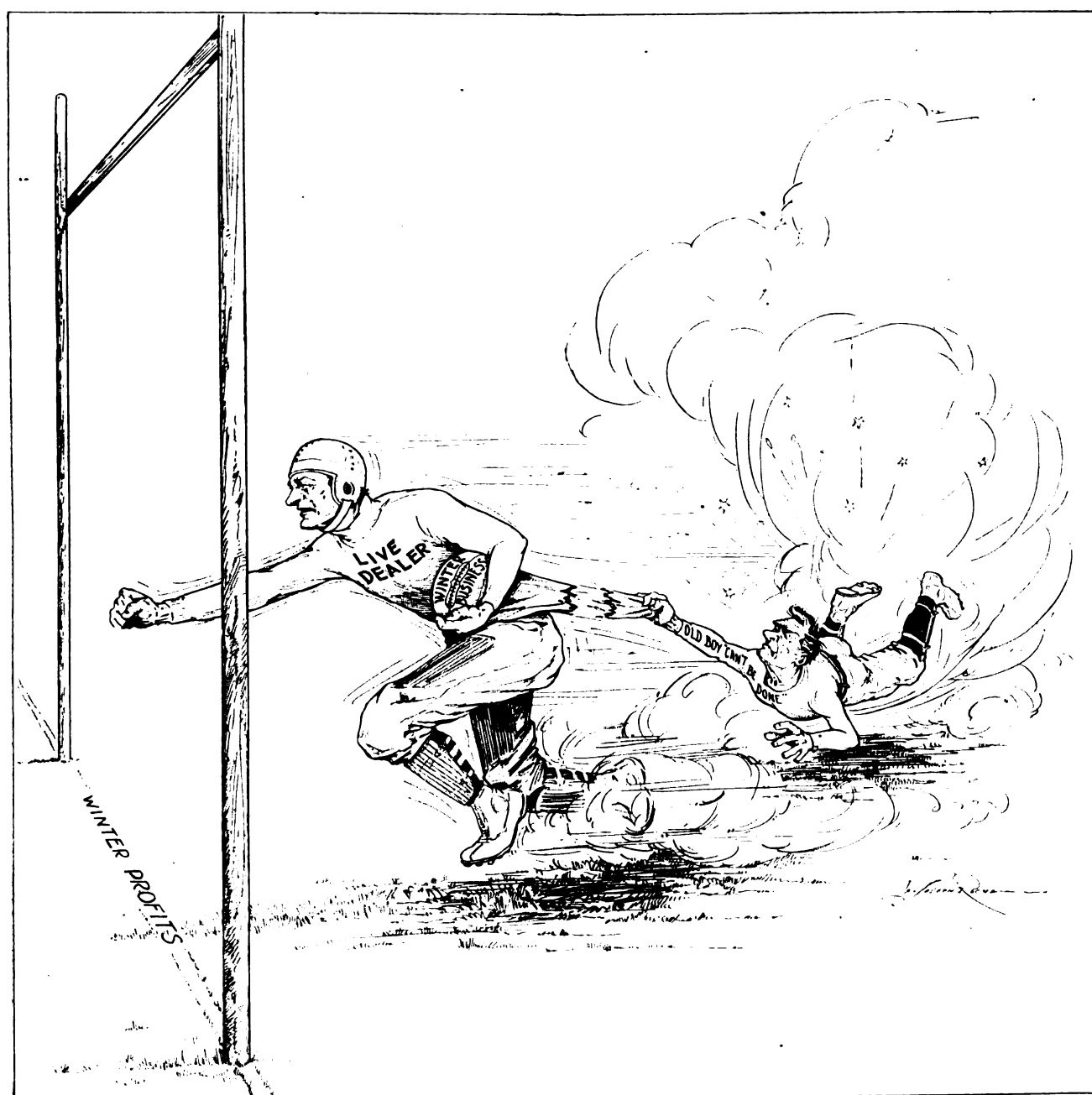
"No."

"Go get it. Read it. Then tell me who's to blame if you don't make a million dollars."

Winter Business

Tear
Em
Up!
Attaboy !

Attaboy!



Judge Did It! You Can Do It!

This Is What Judge Did

He had printed on his letterhead a quantity of letters like that shown at the right. He mailed these to the Ford owners in that section, calling their attention to the fact that his shop specialized in Ford repair work.

The result was that his shop was filled with work and he is getting Winter Business whereas he might have gone through the winter in the old-style profitless way had he not made this very easy and inexpensive effort. It pays. Try it.

Don't imagine you can't do this because it necessitates fancy work. The Judge letter wasn't even filled in. It was not even given an imitation signature. It was a mimeograph job throughout.

Here Is Another

The Lamar Motor Sales Co., Lamar, Col., sent to its trade the letter that is reprinted below. It was mailed Oct. 26. It is one of a series that is bringing Winter Business to this company, even though Lamar is not a big city and is in a very cold country.

With these letters go small mailing inserts. One of them gives the price lists of tires. Another—shown below on this page—calls attention to the tires and accessories the company sells. The letter follows:

The Lamar Letter

Perhaps when you receive this little letter you may not need a new car or any article for the one you now own.

But we want to tell you about our Auto Store here on Main Street that grows bigger and better each day.

More car owners are visiting our Auto Store each day. 'Tis the most interesting place in town for the gentleman or lady that motors.

Our stock of auto needs comprises everything that makes motoring a pleasure.

Our stock of cars consisting of DODGE BROTHERS, HUDSON, and BUICKS are all Standard Cars. Ask anyone that owns one; they will tell you how good they are. Or perhaps you own one, and if that be the case you already know.

In our Tire Department you will find all kinds of Tires for all makes of cars, such well-known lines as GOODYEAR, UNITED STATES, GOODRICH, MICHELIN, REPUBLIC, and BLACKSTONE. Every tire carries the maker's guarantee. We prepay the postage on all mail orders.

We make no charge for putting on tires. Have you seen our new ELECTRIC AIR PUMP? It's a wonderful little machine.

We make a specialty of FORD SIZE TIRES. If you own a Ford you ought to see the new Ford De Luxe Tire.

Then there are a hundred and one accessories that you will find in this EXCLUSIVE AUTO STORE. Yes, we call it Exclusive Auto Store for that is what it is and the only one in the Arkansas Valley.

We want you to come and see us; bring the family or neighbors. We are always glad to see you, and it's no trouble to show merchandise.

THE LAMAR MOTOR SALES CO.



THE JUDGE AUTO COMPANY

THE HOME OF THE FAMOUS



AUTOMOBILE ACCESSORIES
SUPPLIES AND REPAIRS

SPRING VALLEY, N. Y.

November 10, 1917.

This is the day of specialists or the person who can do one thing better than another fellow. The day of the so-called "Jack of All Trades and Master of None" has passed and the master of one has taken his place. The art of Specialization probably applies more closely to the automobile industry than to any other. Every machine is constructed mechanically different.

We are specialists on Ford cars, having studied Fords and their construction for the past five years and have confined ourselves almost exclusively to the repairing of them. We have learned all the "short cuts" so that absolutely no time is lost, as every minute counts when a car is in trouble. And if such is the case, we can find the trouble and fix it more quickly and thoroughly than anyone else because we are "Specialists."

Our stock of Ford parts is a complete one and is kept in that condition at all times. In opening our Nyack Branch we believe that we will fill a long felt want of Ford Owners for real Ford Service in this section of the county. Our Spring Valley Garage has given this kind of service for the past three years with the result that we have sold over 1000 Ford cars during that period. Therefore we respectfully request you to give us a chance to make good with you.

Trusting we may have the pleasure of a personal inspection by you of our new garage on Burd Street, near the Hotel St. George, we beg to remain

Very respectfully yours,

THE JUDGE AUTO COMPANY.

Ed. S. Aker.

Manager Nyack Branch.

THE LAMAR MOTOR SALES CO.

THE HOUSE OF QUALITY CARS

TIRES AND AUTOMOBILE ACCESSORIES

RIGHT ON MAIN STREET

LAMAR, COLO.

ALL KINDS OF NEEDS

Auto Accessories

*Just a few of the 100 and one things
you will find in this
Accessory Shop.*

Seat Covers	Spotlights
Horns	Tire Chains
Tire Covers	Batteries
Flashlights	Lamp Globes
Car Locks	Polish
Oils	Greases
Fan Belts	Spark Plugs
Tire Repair Kits	Hood Covers
Sponges	Blowout Patches
Tools	Tool Boxes
Chamois Skins	Bumpers
Auto Robes	Radiator Covers
Goggles	Tire Locks
Auto Parts	Auto Tops

In fact every little need for the Auto.

Come and See Us.
213 South Main Street.

Tires and Tubes

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	36x5	37x5	37x5½	38x5½
ACME	Plain	16.00	17.20	a18.10			24.40	25.80	a27.50	a30.80	a31.90	33.20	34.30	35.50	36.70	38.00	a45.30	46.70	48.30	49.80	51.10	52.60	59.50	61.40	a76.80	a78.90
	Kam Tread	a17.90	a19.00	a21.00	23.00	a23.90	25.00	26.40	a28.10	a30.40	a31.50	33.80	35.10	36.40	37.40	38.00	q49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	a78.90	
	Dimple	18.40	19.60	a21.00	24.00	a27.40	28.00	29.80	a31.60	a33.40	a35.70	38.30	39.60	40.90	42.20	43.70	a52.10	53.70	55.50	57.10	58.80	60.50	68.50	70.50	a88.30	a90.70
	Hemisphere	20.20	a21.60	23.00	30.80	a32.70	30.80	a30.80	32.70		a40.50	a42.10	43.60	44.90	46.40	a48.10		8.15	8.35	8.45	8.60	8.80	10.30	10.55	11.20	11.50
ADVANCE	Gray and Red Tubes	3.65	3.85	4.15	5.45	5.15	5.45	5.85	6.05	6.25	6.25	6.40	6.65	6.75	6.95	7.15										
	Plain	a12.75	a13.40		a17.45	a18.35	20.40	a23.80		a26.75	a28.00	27.25	28.55	29.15	30.15	31.05		a38.05	a39.25	41.10	41.75	43.45	a46.90	a49.65	a74.55	
	Non-Skid	a13.35	a14.10		a18.25	a19.30	21.40	a24.95		a28.00	a29.60	28.60	29.85	30.65	31.50	32.60		a39.95	a41.30	43.10	43.90	45.60	a49.20	a52.15	a78.20	
AJAX	Plain	a13.65	a14.45	a18.75	18.60	a19.50	22.55	26.95	28.85	a28.95	30.25	30.80	32.10	32.65	34.10	34.55	q46.10	q52.45	43.90	45.55	46.10	47.80	a52.45	52.50	54.45	
	Non-Skid	a15.30	a16.10		a21.35	a22.20	25.30	29.70		a32.25	33.50	34.10	35.40	35.95	37.40	37.85		48.41	48.95	49.95	50.50	52.80	a56.90	58.85	a79.80	
	Road King	a14.70	a15.55		a19.95	a20.95	24.25			a32.60	33.10	34.55	35.10	35.65	37.10	37.10		6.15	6.35	6.51	6.60	6.85	7.00	8.40	9.35	
	Gray Tubes	3.20	3.00	3.40	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.51	6.60	6.85	7.00	8.50	8.80	9.20	
AMAZON	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	9.90	10.00	10.15	10.85	
	Ribbed	q16.75	q16.75		q21.70	q22.85	q25.05			q24.75	q26.35	q33.90	q36.30	q38.90				q49.20	q51.45							
	Non-Skid	q16.70	q17.65		q22.85	q25.05	q26.35			q24.75	q26.35	q33.90	q36.30	q38.90				q49.20	q51.45							
	Red-Gray Tubes	3.15	3.50		4.10		4.25	4.50		5.70	5.90	6.15	6.25	6.40	6.50			q50.35	51.80	54.15	55.40	q57.45	58.75	66.95		
AMERICAN	Ribbed or Plain	15.00	16.00		20.45	22.10	24.05			32.30	33.00	34.70	35.45													
	Triple A Non-Skid	15.80	16.80		21.35	23.00	24.95			33.30	34.00	35.70	36.45													

NOTE—The letter *c* means that a CLINCHER tire is NOT made in this size; *q* that a QUICK-DETACHABLE is not made in this size, and *s* that a STRAIGHT SIDE is not made in this size.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	38x5
DEFIANCE	Plain	q13.00	q13.15																				
	Tiger Tread	q14.35	q14.60																				
	Gray Tubes	3.05	3.10																				
	Red Tubes	3.15	3.45																				
Double Wall Tubes		4.13	4.20																				
DELION	Plain	16.10	18.00	19.40	22.80	24.15	26.45	28.00	33.15	35.55	33.15	35.45	37.45	38.35	40.35	46.90	48.00	50.75	51.37	51.90	53.45	59.90	83.80
	Non-Skid	18.00	19.35	21.00	26.45	27.60	29.00	29.75	39.25	40.10	35.20	39.85	39.65	40.95	42.90	44.05	52.25	53.35	54.30	55.55	57.25	65.70	92.65
	Red Tubes	3.50	3.50	3.90	4.15	4.45	4.55	4.85	5.10	6.10	5.60	5.80	6.10	6.25	6.40	6.60	7.25	7.35	7.60	7.75	8.20	9.25	10.55
DIAMOND	Smooth	14.50	14.10	18.90	18.35	19.30	21.45	25.05	26.65	29.85	28.15	28.70	30.05	30.70	35.05	36.00	38.95	40.05	41.30	43.25	43.95	50.30	70.85
	Square	15.20	14.85	19.80	19.20	20.30	22.60	26.25	27.90	32.00	30.15	31.40	32.25	36.85	37.80	40.95	42.05	43.45	45.35	46.20	52.85	84.90	
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	5.05	5.20	5.00	5.10	5.25	5.40	6.10	6.30	6.25	6.45	6.80	6.80	8.00	9.55	10.95
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	5.65	5.80	5.60	5.70	5.85	6.00	6.80	6.95	6.95	7.15	7.35	7.50	7.75	8.80	11.05
DOUBLE FABRIC	Xtra-Ply	16.35	q17.45																				
	Don-Cord	q21.45																					
	Brazil Gray Tubes	3.15	3.35																				
DREADNAUGHT	Vacuum Red	q18.85																					
	Ribbed Tread	q21.70	q22.95																				
	Super-Dreadnaught Red Tubes	3.40	4.15	4.25	4.15	4.25	4.40	4.65															
DRY CLIMATE	Plain	14.35																					
	Non-Skid	16.80																					
	Red Tubes	3.95	4.10	4.50	4.60	4.95	5.35	5.60	5.75	6.40	6.00	6.00	6.75	6.95	7.05	7.20	8.40	8.50	8.80	8.95	10.50	10.95	
	Gray Tubes	3.05	3.15	3.65	3.85	4.35	4.45	4.50	4.55	5.45	5.00	5.05	5.25	5.35	5.45	5.55	6.80	6.90	7.10	7.35	8.25	8.40	
DUNLOP	Cross Groove		22.95																				
	Tracition Non-Skid Tubes		25.00																				
		4.80	4.85																				
DUPLUX	Plain	13.65	14.55	15.60	18.95	19.55	19.55	19.55	21.95	29.70	30.90	30.90	31.95	34.20	35.25	36.35	42.60	44.05	45.45	46.95	48.40	49.75	70.35
	Non-Skid	19.45	21.00	22.75	27.85	28.55	29.40	30.35	35.40	38.40	39.55	41.25	42.70	44.05	46.70	48.15	53.95	55.40	56.45	58.05	59.75	67.30	92.50
	Red Tubes	3.60	3.85	4.10	5.15	5.30	5.45	5.75	7.25	7.60	7.75	8.05	8.20	8.50	8.70	8.95	9.65	9.80	10.05	10.35	10.60	11.00	14.90
DURAL	Red Tubes	3.65	3.75	4.20	4.55	4.70	4.85	5.10	5.45	6.15	6.05	6.20	6.50	6.75	6.95	7.10	8.40	7.85	8.05	8.25	8.45	8.65	9.90
	Gray Tubes	2.95	3.30	3.30	3.55	3.70	3.90	4.30	4.85	4.55	4.80	5.00	5.15	5.30	5.40	5.60	6.30	6.40	6.60	6.85	7.00	7.60	8.05
EHRMAN	Plain	13.80	13.40																				
	Track Tread	14.45	14.10																				
	Non-Skid Warm Drive Tread	14.45	14.10																				
	Non-Skid Wrapped Tread	16.15	14.80																				
EMPIRE	Gray Tubes	3.10	3.05																				
	Red Tubes	3.40	3.35																				
ENDURANCE	Smooth Gray	q15.20	q16.10																				
	Non-Skid Gray	q16.00	q16.95																				
	Gray Tubes	3.10	3.15																				
	Red Tubes	3.45	3.65																				
FALLS	Ball Bearing Non-Skid	3.45	3.60	3.85	4.05	4.20	4.25	4.60	4.80	5.50	5.60	5.70	5.95	6.15	6.15	6.15	7.30	7.35	7.55	7.70	7.85	9.10	10.65
	Gray Tubes	3.55	3.90	4.35	4.50	5.00	5.10	5.75	6.00	6.15	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.75	8.95	10.30	10.65	12.10
	Ribbed																						
	Pure Gum Green Tubes	4.80	5.00																				
FEDERAL	Plain	q14.30	q13.90																				
	Traffik Tread	q14.95	q14.60																				
	Rugged Tread	q16.55	q16.40																				
	Gray Tubes	3.10	3.05																				
FIRESTONE	Round Tread	13.50	14.00	18.25	17.90	19.55	21.10	23.80	30.00	31.90	27.85	28.35	30.00	30.45	31.65	37.90	39.90	40.85	41.75	43.25	43.95	53.75	50.90
	Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	34.20	37.50	31.50	32.05	33.90	34.60	36.30	43.40	44.55	46.35	46.75	48.60	49.15	60.00	59.95
	Gray Tubes	2.55	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.55	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.55
FISK	Triple Tread																						
	FF Tread																						
	Super Size Red Tubes																						

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	38x5½
G & J.	Plain	13.25	13.80	17.95	18.85	20.80	27.15	28.00	27.45	28.00	29.30	30.05	30.05	36.20	31.90	31.90	32.90	40.45	42.25	42.90	44.65	48.20	56.25	51.10	38.5½
	Non-Skid	16.50	17.05	21.20	22.10	24.05	30.40	31.25	30.75	31.25	32.55	33.30	34.05	40.20	35.90	35.90	36.90	43.05	44.85	45.65	47.45	51.20	59.65	53.70	41.10
	Stalwart Tread	16.40	17.00	21.35	22.45	24.50	30.55	31.45	30.95	31.45	32.75	33.50	34.25	40.40	36.10	36.10	37.10	43.25	45.05	45.85	47.65	51.40	59.85	53.95	41.20
	Gray Tubes	2.85	3.00	3.75	3.85	4.00	4.30	4.30	4.85	5.00	5.15	5.25	5.25	5.45	5.65	5.65	5.65	6.45	6.60	6.85	7.10	8.00	8.15	8.30	83.50
GENERAL.	Red Tubes	3.65	3.75	4.66	4.80	4.90	5.30	5.30	6.00	6.05	6.15	6.25	6.25	6.55	6.65	6.65	6.65	8.10	8.25	8.40	8.50	9.65	9.90	10.10	8.10
	Plain	16.90	17.45	21.05	22.00	22.45	29.05	29.40	28.40	28.70	29.80	30.45	31.85	38.85	39.40	39.40	40.40	46.10	48.30	50.25	53.45	59.40	61.00	61.30	48.10
	Non-Skid	18.35	18.90	22.50	23.45	23.90	30.50	30.85	29.85	30.15	31.25	31.90	33.30	40.30	40.85	40.85	41.85	47.55	49.75	51.70	54.90	60.85	62.45	62.75	49.10
	Gray Tubes	3.05	3.10	3.85	3.90	4.05	4.30	4.30	5.00	5.05	5.15	5.25	5.25	5.45	5.65	5.65	5.65	7.00	7.15	7.30	7.40	8.50	8.75	8.85	10.20
GILLETTE SAFETY.	Red Tubes	3.85	4.00	4.85	4.90	5.10	5.40	5.40	6.10	6.15	6.25	6.35	6.35	6.55	6.75	6.75	6.75	8.10	8.25	8.40	8.50	9.65	9.90	10.10	8.10
	Non-Skid	14.90	15.45	19.05	20.00	20.45	27.05	27.40	26.40	26.70	27.80	28.45	29.85	36.85	37.40	37.40	38.40	44.10	46.30	48.25	51.45	57.40	59.00	59.30	46.10
	Ribbed	15.60	16.15	19.75	20.70	21.15	27.75	28.10	27.10	27.40	28.50	29.15	30.55	37.55	38.10	38.10	39.10	44.80	47.00	48.95	52.15	58.10	59.70	60.00	46.80
	5,000-Mile Non-Skid	18.35	18.90	22.50	23.45	23.90	30.50	30.85	29.85	30.15	31.25	31.90	33.30	40.30	40.85	40.85	41.85	47.55	49.75	51.70	54.90	60.85	62.45	62.75	49.10
GLOBE.	Plain Card	2.75	2.80	3.55	3.60	3.75	4.00	4.00	4.75	4.80	4.90	5.00	5.10	5.20	5.30	5.30	5.30	6.60	6.75	6.90	7.00	8.10	8.35	8.45	9.70
	Non-Skid Card	3.75	3.80	4.55	4.60	4.75	5.00	5.00	5.75	5.80	5.90	6.00	6.10	6.20	6.30	6.30	6.30	7.60	7.75	7.90	8.00	9.10	9.35	9.45	10.70
	Gray Tubes	3.00	3.05	3.80	3.85	4.00	4.30	4.30	5.00	5.05	5.15	5.25	5.25	5.45	5.65	5.65	5.65	6.90	7.05	7.20	7.30	8.40	8.65	8.75	9.80
	Hard Service Red Tubes	3.70	3.75	4.65	4.80	4.90	5.35	5.35	6.00	6.05	6.15	6.25	6.25	6.55	6.75	6.75	6.75	8.10	8.25	8.40	8.50	9.65	9.90	10.10	8.10
GOODRICH.	Plain	19.90	20.45	24.05	25.00	25.45	32.05	32.40	31.40	31.70	32.80	33.45	34.85	41.85	42.40	42.40	43.40	49.10	51.30	53.25	56.45	62.40	64.00	64.30	51.10
	Safety Tread	14.40	14.95	18.55	19.45	19.90	26.50	26.85	25.85	26.15	27.25	27.90	29.30	36.30	36.85	36.85	37.85	43.55	45.75	47.70	49.70	55.65	57.25	57.55	44.10
	Gray Tubes	3.10	3.15	3.90	3.95	4.10	4.40	4.40	5.10	5.15	5.25	5.35	5.35	5.55	5.75	5.75	5.75	7.00	7.15	7.30	7.40	8.50	8.75	8.85	9.90
	Brown Tubes	3.40	3.45	4.20	4.25	4.40	4.70	4.70	5.40	5.45	5.55	5.65	5.65	5.85	6.05	6.05	6.05	7.30	7.45	7.60	7.70	8.80	9.05	9.15	10.40
GOODYEAR.	S. S. Silvertown Ribbed Tread	15.85	16.40	20.00	21.00	21.45	28.05	28.40	27.40	27.70	28.80	29.45	30.85	37.85	38.40	38.40	39.40	45.10	47.30	49.25	52.45	58.40	60.00	60.30	47.30
	Q. D. Silvertown Ribbed Tread	16.40	16.95	20.55	21.55	22.00	28.60	28.95	27.95	28.25	29.35	30.00	31.40	38.40	38.95	38.95	39.95	45.65	47.85	49.80	53.00	59.00	60.60	60.90	47.90
	S. S. Silvertown Safety Tread	17.00	17.55	21.15	22.15	22.60	29.20	29.55	28.55	28.85	29.95	30.60	32.00	39.00	39.55	39.55	40.55	46.25	48.45	50.40	53.60	59.60	61.20	61.50	48.50
	Q. D. Silvertown Safety Tread	17.60	18.15	21.75	22.75	23.20	29.80	30.15	29.15	29.45	30.55	31.20	32.60	39.60	40.15	40.15	41.15	46.85	49.05	51.00	54.20	60.20	61.80	62.10	49.10
GOODYEAR.	Plain	14.35	14.90	18.50	19.45	19.90	26.50	26.85	25.85	26.15	27.25	27.90	29.30	36.30	36.85	36.85	37.85	43.55	45.75	47.70	49.70	55.65	57.25	57.55	44.10
	Triangle Tread	15.00	15.55	19.15	20.10	20.55	27.15	27.50	26.50	26.80	27.90	28.55	29.95	36.95	37.50	37.50	38.50	44.20	46.40	48.35	51.55	57.50	59.10	59.40	45.10
	Gray Tubes	3.40	3.45	4.20	4.25	4.40	4.70	4.70	5.40	5.45	5.55	5.65	5.65	5.85	6.05	6.05	6.05	7.30	7.45	7.60	7.70	8.80	9.05	9.15	10.40
	Red Tubes	3.85	3.90	4.65	4.70	4.85	5.15	5.15	5.85	5.90	6.00	6.10	6.20	6.30	6.40	6.40	6.40	7.70	7.85	8.00	8.10	9.20	9.45	9.55	10.70
GORDON.	Non-Skid	15.00	15.55	19.15	20.10	20.55	27.15	27.50	26.50	26.80	27.90	28.55	29.95	36.95	37.50	37.50	38.50	44.20	46.40	48.35	51.55	57.50	59.10	59.40	45.10
	Gray Tubes	3.70	3.75	4.50	4.55	4.70	5.00	5.00	5.70	5.75	5.85	5.95	6.05	6.15	6.25	6.25	6.25	7.50	7.65	7.80	7.90	9.00	9.25	9.35	10.60
	Red Tubes	3.25	3.30	4.05	4.10	4.25	4.55	4.55	5.25	5.30	5.40	5.50	5.60	5.70	5.80	5.80	5.80	7.10	7.25	7.40	7.50	8.60	8.85	8.95	10.10
	Gray Tubes	3.05	3.10	3.85	3.90	4.05	4.30	4.30	5.00	5.05	5.15	5.25	5.25	5.45	5.65	5.65	5.65	6.90	7.05	7.20	7.30	8.40	8.65	8.75	9.80
GRYPHON.	Plain	14.80	15.35	18.95	19.90	20.35	26.95	27.30	26.30	26.60	27.70	28.35	29.75	36.75	37.30	37.30	38.30	44.00	46.20	48.15	51.35	57.30	58.90	59.20	46.20
	Non-Skid	16.20	16.75	20.35	21.30	21.75	28.35	28.70	27.70	28.00	29.10	29.75	31.15	38.15	38.70	38.70	39.70	45.40	47.60	49.55	52.75	58.70	60.30	60.60	47.20
	Invincible and Perfection Pink Tubes	3.55	3.60	4.35	4.40	4.55	4.85	4.85	5.55	5.60	5.70	5.80	5.90	6.00	6.10	6.10	6.10	7.40	7.55	7.70	7.80	8.90	9.15	9.25	10.50
	Gray Tubes	2.90	2.95	3.70	3.75	3.90	4.20	4.20	4.90	4.95	5.05	5.15	5.25	5.35	5.45	5.45	5.45	6.70	6.85	7.00	7.10	8.20	8.45	8.55	9.70
HAMILTON.	Plain	13.45	14.00	17.60	18.55	19.00	25.60	25.95	24.95	25.25	26.35	27.00	28.40	35.40	35.95	35.95	36.95	42.65	44.85	46.80	50.00	56.00	57.60	57.90	44.80
	Non-Skid	15.10	15.65	19.25	20.20	20.65	27.25	27.60	26.60	26.90	28.00	28.65	30.05	37.05	37.60	37.60	38.60	44.30	46.50	48.45	51.65	57.60	59.20	59.50	45.80
	Tubes	3.10	3.15	3.90	3.95	4.10	4.40	4.40	5.10	5.15	5.25	5.35	5.35	5.55	5.75	5.75	5.75	7.00	7.15	7.30	7.40	8.50	8		

TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HENDRIE	Plain	16.10	16.65	18.00	19.90	21.30	22.30	24.95	29.00	29.55	30.65	31.35	32.05	33.15	33.40	40.70	41.45	42.15	43.80	44.35	45.85	52.35	53.50	56.75	60.60	72.20
	Non-Skid	19.20	20.20	21.30	24.15	24.70	26.75	29.25	33.05	34.20	35.10	36.25	37.05	38.05	38.65	40.55	41.25	42.05	43.85	44.35	45.85	52.35	53.50	56.75	60.60	72.20
	California Non-Skid	22.05	23.15	24.40	27.80	28.35	31.90	33.60	37.95	39.35	40.30	41.70	42.55	43.85	44.50	46.40	47.10	47.90	49.70	50.20	51.70	58.20	59.40	62.65	66.50	82.25
	Hendrie Gray Tube	3.45	3.65	4.05	4.25	4.40	4.45	4.75	5.80	5.90	6.05	6.25	6.45	6.55	6.70	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	10.80	11.00
HIGHWAY	California Red Tube	4.35	4.40	4.50	5.30	5.35	5.40	5.70	6.70	6.90	7.00	7.15	7.35	7.45	7.60	9.20	9.40	9.65	9.85	10.05	10.30	11.65	11.75	12.00	12.60	12.75
	Non-Skid	q14.85	q14.30	q18.35	q18.35	q21.75	q21.75	q24.95	q28.50	q29.20	q29.20	q30.40	q31.25	q32.05	q32.65	q34.40	q34.40	q34.40	q34.40	q34.40	q34.40	q34.40	q34.40	q34.40	q34.40	q34.40
	Red Tubes	3.50	3.60	3.80	4.20	4.25	4.35	4.65	5.35	5.50	5.55	5.65	5.85	6.10	6.25	6.35	6.45	6.55	6.65	6.75	6.85	8.00	8.30	8.50	9.00	9.50
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.20	5.20	5.70	5.45	5.60	5.65	5.75	5.85	7.00	7.30	7.50	8.00	8.20	
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	38.20	38.85	39.65	40.65	41.65	42.65	43.65	53.00	53.80	54.60	55.40	56.20	57.00	68.85	70.20	71.35	81.50	92.50
	Non-Skid	24.30	24.85	27.00	31.50	34.15	35.45	37.95	43.95	44.65	45.85	46.75	47.65	48.55	49.45	61.05	61.95	62.85	63.75	64.65	65.55	76.35	77.70	78.85	91.50	100.65
	Puritan Plain	q16.75	q16.75	q19.00	q20.35	q21.45	q22.80	q24.15	q28.50	q29.70	q30.45	q31.15	q31.85	q32.55	q33.25	q34.55	q34.55	q34.55	q34.55	q34.55	q34.55	q34.55	q34.55	q34.55	q34.55	q34.55
	Puritan Gripper Non-Skid	q18.95	q18.95	q21.85	q23.50	q25.25	q26.85	q28.50	q30.45	q31.15	q31.85	q32.55	q33.25	q33.95	q34.65	q35.35	q35.35	q35.35	q35.35	q35.35	q35.35	q35.35	q35.35	q35.35	q35.35	q35.35
HOWE	Hood Red and Gray Tubes	3.85	4.00	4.50	4.75	4.90	4.95	5.20	5.80	5.90	6.00	6.10	6.25	6.45	6.55	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	11.20	11.75
	Puritan Red and Gray Tubes	3.40	3.45	4.05	4.75	4.90	4.95	5.20	5.80	5.90	6.00	6.10	6.25	6.45	6.55	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	11.20	11.75
	Plain	q18.80	q18.80	q22.50	q22.50	q29.40	q29.40	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50
	Ribbed Tread	q19.20	q19.20	q23.00	q23.00	q30.60	q30.60	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70	q33.70
INDIANA	Gray Tubes	2.90	3.00	3.20	3.60	3.60	3.75	3.95	4.25	4.70	4.75	4.85	5.00	5.15	5.40	6.10	6.15	6.25	6.35	6.45	6.55	7.80	8.00	8.10	9.20	9.45
	Red Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.70	5.00	5.55	5.55	5.65	5.80	6.00	6.20	7.05	7.10	7.20	7.30	7.40	7.50	8.55	8.70	8.80	10.25	10.85
	Plain	13.50	14.00	15.25	17.90	19.55	21.10	23.80	27.85	28.35	29.00	30.45	31.65	32.85	33.60	37.90	40.85	41.75	42.65	43.55	44.45	50.90	51.75	53.05	61.05	63.10
	Butt and Traction Non-Skid	15.15	15.70	17.00	20.75	21.35	23.60	26.95	31.50	32.00	32.55	33.90	34.40	35.85	36.30	43.40	46.35	47.25	48.15	49.05	50.00	59.95	61.05	62.15	71.05	73.10
KELLY-SPRINGFIELD	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	4.60	4.75	4.80	4.95	5.10	5.30	5.45	6.45	6.50	6.60	6.70	6.80	7.85	8.05	8.15	9.00	9.15	
	Brown Tubes	3.30	3.40	3.50	3.65	3.80	3.95	4.10	4.95	5.10	5.15	5.30	5.45	5.60	5.75	6.60	6.65	6.75	6.85	6.95	8.00	8.20	8.30	9.15	9.30	
	Plain	q21.90	q20.95	q25.45	q25.45	q28.20	q28.20	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50	q32.50
	Driving Tread	q26.55	q25.00	q30.00	q30.00	q35.70	q35.70	q38.80	q42.00	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95	q44.95
KNIGHT	Kant-Slip Tread	3.65	3.75	4.00	4.80	4.95	5.15	5.45	5.85	5.95	6.10	6.20	6.40	6.65	6.75	7.80	7.85	7.95	8.05	8.15	9.20	9.40	9.50	10.35	10.50	
	Blackstone Non-Skid	15.85	16.35	17.60	21.35	22.85	24.35	26.85	31.50	32.00	32.55	33.90	34.40	35.85	36.30	43.40	46.35	47.25	48.15	49.05	50.00	59.95	61.05	62.15	71.05	73.10
	Blackstone Tubes	25.00	25.50	26.50	31.30	32.30	33.30	35.70	43.15	44.15	45.15	46.15	47.15	48.15	49.15	51.80	54.75	55.65	56.55	57.45	68.40	69.50	70.60	79.50	81.60	
	Knight Red Tubes	3.10	3.20	3.35	3.60	3.75	3.80	4.05	4.80	4.95	5.00	5.15	5.30	5.45	5.60	6.45	6.50	6.60	6.70	6.80	7.85	8.05	8.15	9.00	9.15	
KOKOMO	Plain	q15.25	q15.85	q18.15	q18.15	q23.80	q23.80	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90	q27.90
	Gridiron Non-Skid	q16.00	q16.65	q18.95	q18.95	q24.50	q24.50	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60	q28.60
	Standard Gray Tubes	2.90	3.05	3.25	3.60	3.65	3.80	4.05	4.25	4.75	4.80	4.95	5.15	5.30	5.45	6.10	6.15	6.25	6.35	6.45	7.50	7.70	7.80	8.65	8.80	
	Everlast Red Tubes	3.45	3.55	3.80	4.45	4.50	4.65	4.90	5.65	5.75	5.85	6.00	6.15	6.30	6.45	7.15	7.20	7.30	7.40	7.50	8.55	8.75	8.85	9.70	9.85	
LEE	Standard Plain	15.75	16.25	17.50	21.25	22.75	24.25	26.75	31.50	32.00	32.55	33.90	34.40	35.85	36.30	43.40	46.35	47.25	48.15	49.05	50.00	59.95	61.05	62.15	71.05	73.10
	Standard Non-Skid	16.50	17.00	18.25	22.00	23.50	25.00	27.50	32.25	32.75	33.30	34.80	35.30	36.80	37.30	44.40	47.35	48.25	49.15	50.05	61.00	62.10	63.20	72.10	74.20	
	Puncture Proof Plain	26.85	27.35	28.60	32.35	33.85	35.35	37.85	42.60	43.10	43.65	44.15	44.65	45.15	45.65	52.75	55.70	56.60	57.50	58.40	69.35	70.45	71.55	80.45	82.55	
	Puncture Proof Non-Skid	29.60	30.10	31.35	35.10	36.60	38.10	40.60	45.35	45.85	46.35	46.85	47.35	47.85	48.35	55.45	58.40	59.30	60.20	61.10	72.05	73.15	74.25	83.15	85.25	
MC CREARY	Gray Tubes	3.10	3.20	3.35	3.50	3.65	3.80	4.05	4.80	4.95	5.00	5.15	5.30	5.45	5.60	6.45	6.50	6.60	6.70	6.80						

Name	Trade Name and Tread	28x3	30x3	32x3	34x3½	36x3½	30x4	32x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	38x5½
MARION.	Plain Non-Skid Gray Red	q13.20 q14.05 q15.05 3.00	q18.05 q19.40 3.00 3.50	q20.00 3.70 4.75	q22.00 3.90 4.50	q24.00 4.10 4.75	q26.00 4.30 4.90	q28.00 4.50 5.10	q30.00 4.70 5.30	q32.00 4.90 5.50	q34.00 5.10 5.70	q36.00 5.30 5.90	q38.00 5.50 6.10	q40.00 5.70 6.30	q42.00 5.90 6.50	q44.00 6.10 6.70	q46.00 6.30 6.90	q48.00 6.50 7.10	q50.00 6.70 7.30	q52.00 6.90 7.50	q54.00 7.10 7.70
MASON.	Plain Tread Ribbed Tread Non-Skid Gray Tubes Red Tubes	14.10 14.85 15.95 3.15 3.65	19.00 20.35 21.20 3.80 3.75	20.40 21.85 22.65 3.95 4.55	22.15 23.95 24.80 4.15 4.75	23.95 25.80 26.65 4.35 4.95	25.80 27.65 28.50 4.55 5.15	27.65 29.50 30.35 4.75 5.35	29.50 31.35 32.20 4.95 5.55	31.35 33.20 34.05 5.15 5.75	33.20 35.05 35.90 5.35 5.95	35.05 36.90 37.75 5.55 6.15	36.90 38.75 39.60 5.75 6.35	38.75 40.60 41.45 5.95 6.55	40.60 42.45 43.30 6.15 6.75	42.45 44.30 45.15 6.35 6.95	44.30 46.15 47.00 6.55 7.15	46.15 48.00 48.85 6.75 7.35	48.00 49.85 50.70 6.95 7.55	50.70 52.55 53.40 7.15 7.75	52.55 54.40 55.25 7.35 7.95
MICHELIN.	Plain Tread Universal Tread	q14.95 3.55	q15.60 3.70	q16.25 3.85	q16.90 4.00	q17.55 4.15	q18.20 4.30	q18.85 4.45	q19.50 4.60	q20.15 4.75	q20.80 4.90	q21.45 5.05	q22.10 5.20	q22.75 5.35	q23.40 5.50	q24.05 5.65	q24.70 5.80	q25.35 5.95	q26.00 6.10	q26.65 6.25	q27.30 6.40
MOHAWK.	Plain Non-Skid Ribbed Tread Pure Gum and Red Tubes Keaton	q18.70 q19.65 q20.55 q21.10 3.40	q19.65 q20.55 q21.45 q22.35 3.55	q20.55 q21.45 q22.35 q23.25 3.70	q21.45 q22.35 q23.25 q24.15 3.85	q22.35 q23.25 q24.15 q25.05 4.00	q23.25 q24.15 q25.05 q25.95 4.15	q24.15 q25.05 q25.95 q26.85 4.30	q25.05 q25.95 q26.85 q27.75 4.45	q25.95 q26.85 q27.75 q28.65 4.60	q26.85 q27.75 q28.65 q29.55 4.75	q27.75 q28.65 q29.55 q30.45 4.90	q28.65 q29.55 q30.45 q31.35 5.05	q29.55 q30.45 q31.35 q32.25 5.20	q30.45 q31.35 q32.25 q33.15 5.35	q31.35 q32.25 q33.15 q34.05 5.50	q32.25 q33.15 q34.05 q34.95 5.65	q33.15 q34.05 q34.95 q35.85 5.80	q34.05 q34.95 q35.85 q36.75 5.95	q34.95 q35.85 q36.75 q37.65 6.10	q35.85 q36.75 q37.65 q38.55 6.25
MONARCH.	Gray Tubes Red Tubes	3.15 3.45	3.35 3.70	3.55 3.90	3.75 4.10	3.95 4.30	4.15 4.50	4.35 4.70	4.55 4.90	4.75 5.10	4.95 5.30	5.15 5.50	5.35 5.70	5.55 5.90	5.75 6.10	5.95 6.30	6.15 6.50	6.35 6.70	6.55 6.90	6.75 7.10	6.95 7.30
NABOB.	Plain Tread Safety Traction Non-Skid Tubes	q19.95 q20.95 q21.95 3.65	q20.95 q21.95 q22.95 3.75	q21.95 q22.95 q23.95 3.85	q22.95 q23.95 q24.95 3.95	q23.95 q24.95 q25.95 4.05	q24.95 q25.95 q26.95 4.15	q25.95 q26.95 q27.95 4.25	q26.95 q27.95 q28.95 4.35	q27.95 q28.95 q29.95 4.45	q28.95 q29.95 q30.95 4.55	q29.95 q30.95 q31.95 4.65	q30.95 q31.95 q32.95 4.75	q31.95 q32.95 q33.95 4.85	q32.95 q33.95 q34.95 4.95	q33.95 q34.95 q35.95 5.05	q34.95 q35.95 q36.95 5.15	q35.95 q36.95 q37.95 5.25	q36.95 q37.95 q38.95 5.35	q37.95 q38.95 q39.95 5.45	q38.95 q39.95 q40.95 5.55
NASSAU.	Plain Non-Skid Gray Tubes	12.85 14.40 14.85	13.20 14.85 15.30	13.60 15.20 15.65	14.00 15.60 16.05	14.40 16.00 16.45	14.80 16.40 16.85	15.20 16.80 17.25	15.60 17.20 17.65	16.00 17.60 18.05	16.40 18.00 18.45	16.80 18.40 18.85	17.20 18.80 19.25	17.60 19.20 19.65	18.00 19.60 20.05	18.40 20.00 20.45	18.80 20.40 20.85	19.20 20.80 21.25	19.60 21.20 21.65	20.00 21.60 22.05	20.40 22.00 22.45
NATIONAL.	Plain Non-Skid Gray Tubes Red Tubes	12.30 12.90 3.25 3.55	12.90 13.50 3.35 3.70	13.50 14.10 3.55 3.90	14.10 14.70 3.75 4.10	14.70 15.30 3.95 4.30	15.30 15.90 4.15 4.50	15.90 16.50 4.35 4.70	16.50 17.10 4.55 4.90	17.10 17.70 4.75 5.10	17.70 18.30 4.95 5.30	18.30 18.90 5.15 5.50	18.90 19.50 5.35 5.70	19.50 20.10 5.55 5.90	20.10 20.70 5.75 6.10	20.70 21.30 5.95 6.30	21.30 21.90 6.15 6.50	21.90 22.50 6.35 6.70	22.50 23.10 6.55 6.90	23.10 23.70 6.75 7.10	23.70 24.30 6.95 7.30
NEEDHAM.	Plain Non-Skid Tubes	q13.20 2.80	q14.30 2.90	q15.40 3.00	q16.50 3.10	q17.60 3.20	q18.70 3.30	q19.80 3.40	q20.90 3.50	q22.00 3.60	q23.10 3.70	q24.20 3.80	q25.30 3.90	q26.40 4.00	q27.50 4.10	q28.60 4.20	q29.70 4.30	q30.80 4.40	q31.90 4.50	q33.00 4.60	q34.10 4.70
NEWCASTLE.	Plain Non-Skid Pure Gum Gray Tubes	14.75 16.30 3.20	15.30 16.90 3.30	15.90 17.50 3.40	16.50 18.10 3.50	17.10 18.70 3.60	17.70 19.30 3.70	18.30 19.90 3.80	18.90 20.50 3.90	19.50 21.10 4.00	20.10 21.70 4.10	20.70 22.30 4.20	21.30 22.90 4.30	21.90 23.50 4.40	22.50 24.10 4.50	23.10 24.70 4.60	23.70 25.30 4.70	24.30 25.90 4.80	24.90 26.50 4.90	25.50 27.10 5.00	26.10 27.70 5.10
NORWALK.	Ribbed Plain Non-Skid Gray Tubes Red Tubes	s19.65 s20.70 3.30 3.65	s20.70 s21.80 3.40 3.75	s21.80 s22.90 3.50 3.85	s22.90 s24.00 3.60 3.95	s24.00 s25.10 3.70 4.05	s25.10 s26.20 3.80 4.15	s26.20 s27.30 3.90 4.25	s27.30 s28.40 4.00 4.35	s28.40 s29.50 4.10 4.45	s29.50 s30.60 4.20 4.55	s30.60 s31.70 4.30 4.65	s31.70 s32.80 4.40 4.75	s32.80 s33.90 4.50 4.85	s33.90 s35.00 4.60 4.95	s35.00 s36.10 4.70 5.05	s36.10 s37.20 4.80 5.15	s37.20 s38.30 4.90 5.25	s38.30 s39.40 5.00 5.35	s39.40 s40.50 5.10 5.45	s40.50 s41.60 5.20 5.55
ORVILLE.	Non-Skid Gray Pure Gum and Red Special	q15.25 2.95 3.90	q16.35 3.05 4.10	q17.45 3.15 4.20	q18.55 3.25 4.30	q19.65 3.35 4.40	q20.75 3.45 4.50	q21.85 3.55 4.60	q22.95 3.65 4.70	q24.05 3.75 4.80	q25.15 3.85 4.90	q26.25 3.95 5.00	q27.35 4.05 5.10	q28.45 4.15 5.20	q29.55 4.25 5.30	q30.65 4.35 5.40	q31.75 4.45 5.50	q32.85 4.55 5.60	q33.95 4.65 5.70	q35.05 4.75 5.80	q36.15 4.85 5.90
PALMER.	Tubes	6.35	6.60	6.85	7.10	7.35	7.60	7.85	8.10	8.35	8.60	8.85	9.10	9.35	9.60	9.85	10.10	10.35	10.60	10.85	11.10
PEARCE.	Merton Plain Non-Skid German Town Card Plain Non-Skid Red Tubes	11.00 11.85 12.00 17.50 3.25	11.85 12.70 12.85 18.25 3.45	12.70 13.55 13.70 18.75 3.65	13.55 14.40 14.55 19.25 3.85	14.40 15.25 15.40 19.75 4.05	15.25 16.10 16.25 20.25 4.25	16.10 16.95 17.10 20.75 4.45	16.95 17.80 17.95 21.25 4.65	17.80 18.65 18.80 21.75 4.85	18.65 19.50 19.65 22.25 5.05	19.50 20.35 20.50 22.75 5.25	20.35 21.20 21.35 23.25 5.45	21.20 22.05 22.20 23.75 5.65	22.05 22.90 23.05 24.25 5.85	22.90 23.75 23.90 24.75 6.05	23.75 24.60 24.75 25.25 6.25	24.60 25.45 25.60 25.75 6.45	25.45 26.30 26.45 26.50 6.65	26.30 27.15 27.30 27.35 6.85	27.15 28.00 28.15 28.20 7.05
PEERLESS.	Non-Skid Gray Tubes Red Tubes Liberty Plain Liberty Non-Skid Liberty Gray Tubes Liberty Red Tubes	16.80 3.05 3.40 14.00 15.70 3.05 3.40	17.40 3.15 3.50 14.60 16.30 3.15 3.50	18.00 3.25 3.60 15.20 16.90 3.25 3.60	18.60 3.35 3.70 15.80 17.50 3.35 3.70	19.20 3.45 3.80 16.40 18.10 3.45 3.80	19.80 3.55 3.90 17.00 18.70 3.55 3.90	20.40 3.65 4.00 17.60 19.30 3.65 4.00	21.00 3.75 4.10 18.20 19.90 3.75 4.10	21.60 3.85 4.20 18.80 20.50 3.85 4.20	22.20 3.95 4.30 19.40 21.10 3.95 4.30	22.80 4.05 4.40 20.00 21.70 4.05 4.40	23.40 4.15 4.50 20.60 22.30 4.15 4.50	24.00 4.25 4.60 21.20 22.90 4.25 4.60	24.60 4.35 4.70 21.80 23.50 4.35 4.70	25.20 4.45 4.80 22.40 24.10 4.45 4.80	25.80 4.55 4.90 23.00 24.70 4.55 4.90	26.40 4.65 5.00 23.60 25.30 4.65 5.00	27.00 4.75 5.10 24.20 25.90 4.75 5.10	27.60 4.85 5.20 24.80 26.50 4.85 5.20	28.20 4.95 5.30 25.40 27.10 4.95 5.30
PENNSYLVANIA.	Bar O Circle Vacuum Cup Ton-Tested Gray Tubes	12.80 14.05 16.10 2.80	13.45 14.70 16.80 2.90	14.10 15.35 17.45 3.00	14.75 16.00 18.10 3.10	15.40 16.65 18.75 3.20	16.05 17.30 19.40 3.30	16.70 17.95 20.05 3.40	17.35 18.60 20.70 3.50	18.00 19.25 21.35 3.60	18.65 19.90 22.00 3.70	19.30 20.55 22.65 3.80	19.95 21.20 23.30 3.90	20.60 21.85 23.95 4.00	21.25 22.50 24.60 4.10	21.90 23.15 25.25 4.20	22.55 23.80 25.90 4.30	23.20 24.45 26.55 4.40	23.85 25.10 27.20 4.50	24.50 25.75 27.85 4.60	25.15 26.40 28.50 4.70
PERFECTION.	Plain Gray Tubes Red Tubes	18.00 3.20 3.40	18.60 3.30 3.50	19.20 3.40 3.60	19.80 3.50 3.70	20.40 3.60 3.80	21.00 3.70 3.90	21.60 3.80 4.00	22.20 3.90 4.10	22.80 4.00 4.20	23.40 4.10 4.30	24.00 4.20 4.40	24.60 4.30 4.50	25.20 4.40 4.60	25.80 4.50 4.70	26.40 4.60 4.80	27.00 4.70 4.90	27.60 4.80 5.00	28.20 4.90 5.10	28.80 5.00 5.20	29.40 5.10 5.30
PHARIS.	Plain Non-Skid Gray Tubes Red Tubes	13.10 14.85 3.15 3.65	13.85 15.60 3.25 3.75	14.60 16.35 3.35 3.85	15.35 17.10 3.45 3.95	16.10 17.85 3.55 4.05	16.85 18.60 3.65 4.15	17.60 19.35 3.75 4.25	18.35 20.10 3.85 4.35	19.10 20.85 3.95 4.45	19.85 21.60 4.05 4.55	20.60 22.35 4.15 4.65	21.35 23.10 4.25 4.75	22.10 23.85 4.35 4.85	22.85 24.60 4.45 4.95	23.60 25.35 4.55 5.05	24.35 26.10 4.65 5.15	25.10 26.85 4.75 5.25	25.85 27.60 4.85 5.35	26.60 28.35 4.95 5.45	27.35 29.10 5.05 5.55
PORTAGE.	Plain Diary Non-Skid Gray or Red Tubes	s14.00 s16.20 3.20	s15.10 s17.45 3.35	s16.20 s18.55 3.45	s17.30 s19.65 3.55	s18.40 s20.75 3.65	s19.50 s21.85 3.75	s20.60 s22.95 3.85	s21.70 s23.85 3.95	s22.80 s24.95 4.05	s23.90 s26.05 4.15	s25.00 s27.15 4.25	s26.10 s28.25 4.35	s27.20 s29.35 4.45	s28.30 s30.45 4.55	s29.40 s31.55 4.65	s30.50 s32.65 4.75	s31.60 s33.75 4.85	s32.70 s34.85 4.95	s33.80 s35.95 5.05	s34.90 s37.05 5.15

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	38x5½
PORTER	Giant	qs15.00	qs16.45	qs17.00	qs22.65	qs24.25	qs25.50	qs26.50	qs27.95	qs28.95	qs31.65	qs32.35	qs33.30	qs34.35	qs35.25	qs36.30	qs40.00	qs42.00	qs43.25	qs44.25	qs45.25	qs46.25	qs47.70	qs48.80	qs50.00	qs51.25
	Non-Skid	qs16.00	qs17.50	qs18.50	qs23.85	qs25.45	qs26.30	qs27.95	qs29.45	qs30.45	qs33.95	qs34.65	qs35.65	qs36.65	qs37.65	qs38.65	qs42.35	qs44.35	qs45.65	qs46.65	qs47.65	qs48.65	qs50.15	qs51.15	qs52.15	qs53.15
	Gray Tubes	qs16.00	qs17.50	qs18.50	qs23.85	qs25.45	qs26.30	qs27.95	qs29.45	qs30.45	qs33.95	qs34.65	qs35.65	qs36.65	qs37.65	qs38.65	qs42.35	qs44.35	qs45.65	qs46.65	qs47.65	qs48.65	qs50.15	qs51.15	qs52.15	qs53.15
QUAKER	Plain	qs18.40	qs19.45	qs21.00	qs24.30	qs25.85	qs26.85	qs28.40	qs29.95	qs30.95	qs34.35	qs35.35	qs36.35	qs37.35	qs38.35	qs39.35	qs43.05	qs45.05	qs46.35	qs47.35	qs48.35	qs49.35	qs50.85	qs51.85	qs52.85	qs53.85
	T.I.T. Non-Skid	qs19.50	qs21.45	qs23.30	qs27.00	qs28.05	qs29.05	qs30.50	qs32.00	qs33.00	qs36.50	qs37.50	qs38.50	qs39.50	qs40.50	qs44.00	qs46.00	qs47.30	qs48.30	qs49.30	qs50.80	qs51.80	qs52.80	qs53.80	qs54.80	
	Gray Tubes	qs19.50	qs21.45	qs23.30	qs27.00	qs28.05	qs29.05	qs30.50	qs32.00	qs33.00	qs36.50	qs37.50	qs38.50	qs39.50	qs40.50	qs44.00	qs46.00	qs47.30	qs48.30	qs49.30	qs50.80	qs51.80	qs52.80	qs53.80	qs54.80	
RACINE	Plain	qs14.20	qs15.20	qs17.00	qs18.75	qs19.75	qs21.75	qs23.25	qs24.25	qs25.25	qs28.75	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs37.25	qs39.25	qs40.50	qs41.50	qs42.50	qs43.50	qs45.00	qs46.00	qs47.00	qs48.00
	Curry Road	qs16.50	qs17.75	qs20.85	qs22.60	qs23.60	qs25.50	qs27.25	qs28.25	qs29.25	qs32.75	qs33.75	qs34.75	qs35.75	qs36.75	qs37.75	qs41.25	qs43.25	qs44.50	qs45.50	qs46.50	qs47.50	qs49.00	qs50.00	qs51.00	
	Non-Skid	qs16.50	qs17.75	qs20.85	qs22.60	qs23.60	qs25.50	qs27.25	qs28.25	qs29.25	qs32.75	qs33.75	qs34.75	qs35.75	qs36.75	qs37.75	qs41.25	qs43.25	qs44.50	qs45.50	qs46.50	qs47.50	qs49.00	qs50.00	qs51.00	
RACINE HORSESHOE	Plain	qs16.00	qs17.50	qs18.50	qs22.50	qs24.00	qs25.00	qs26.50	qs28.00	qs29.00	qs32.50	qs33.50	qs34.50	qs35.50	qs36.50	qs37.50	qs41.00	qs43.00	qs44.25	qs45.25	qs46.25	qs47.25	qs48.75	qs49.75	qs50.75	qs51.75
	Non-Skid	qs17.00	qs18.50	qs19.50	qs23.50	qs25.00	qs26.00	qs27.50	qs29.00	qs30.00	qs33.50	qs34.50	qs35.50	qs36.50	qs37.50	qs38.50	qs42.00	qs44.00	qs45.25	qs46.25	qs47.25	qs48.75	qs49.75	qs50.75	qs51.75	
	Gray Tubes	qs17.00	qs18.50	qs19.50	qs23.50	qs25.00	qs26.00	qs27.50	qs29.00	qs30.00	qs33.50	qs34.50	qs35.50	qs36.50	qs37.50	qs38.50	qs42.00	qs44.00	qs45.25	qs46.25	qs47.25	qs48.75	qs49.75	qs50.75	qs51.75	
RECORD	Ribbed Tread	qs14.30	qs15.30	qs16.30	qs18.35	qs19.35	qs21.75	qs23.25	qs24.25	qs25.25	qs28.75	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs37.25	qs39.25	qs40.50	qs41.50	qs42.50	qs43.50	qs45.00	qs46.00	qs47.00	qs48.00
	Non-Skid	qs15.30	qs16.30	qs17.30	qs19.35	qs20.35	qs22.75	qs24.25	qs25.25	qs26.25	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs34.75	qs38.25	qs40.25	qs41.50	qs42.50	qs43.50	qs44.50	qs46.00	qs47.00	qs48.00	qs49.00
	Gray Tubes	qs15.30	qs16.30	qs17.30	qs19.35	qs20.35	qs22.75	qs24.25	qs25.25	qs26.25	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs34.75	qs38.25	qs40.25	qs41.50	qs42.50	qs43.50	qs44.50	qs46.00	qs47.00	qs48.00	qs49.00
REPUBLIC	Plain	qs14.15	qs15.20	qs16.30	qs18.35	qs19.35	qs21.75	qs23.25	qs24.25	qs25.25	qs28.75	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs37.25	qs39.25	qs40.50	qs41.50	qs42.50	qs43.50	qs45.00	qs46.00	qs47.00	qs48.00
	Non-Skid	qs15.15	qs16.20	qs17.30	qs19.35	qs20.35	qs22.75	qs24.25	qs25.25	qs26.25	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs34.75	qs38.25	qs40.25	qs41.50	qs42.50	qs43.50	qs44.50	qs46.00	qs47.00	qs48.00	qs49.00
	Gray Tubes	qs15.15	qs16.20	qs17.30	qs19.35	qs20.35	qs22.75	qs24.25	qs25.25	qs26.25	qs29.75	qs30.75	qs31.75	qs32.75	qs33.75	qs34.75	qs38.25	qs40.25	qs41.50	qs42.50	qs43.50	qs44.50	qs46.00	qs47.00	qs48.00	qs49.00
REVERE	Plain	qs13.25	qs14.30	qs15.40	qs17.45	qs18.45	qs20.45	qs21.95	qs22.95	qs23.95	qs27.45	qs28.45	qs29.45	qs30.45	qs31.45	qs32.45	qs35.95	qs37.95	qs39.25	qs40.25	qs41.25	qs42.25	qs43.75	qs44.75	qs45.75	qs46.75
	Anti-Skid Castings	qs14.25	qs15.30	qs16.40	qs18.45	qs19.45	qs21.45	qs22.95	qs23.95	qs24.95	qs28.45	qs29.45	qs30.45	qs31.45	qs32.45	qs33.45	qs36.95	qs38.95	qs40.25	qs41.25	qs42.25	qs43.25	qs44.75	qs45.75	qs46.75	qs47.75
	Gray Tubes	qs14.25	qs15.30	qs16.40	qs18.45	qs19.45	qs21.45	qs22.95	qs23.95	qs24.95	qs28.45	qs29.45	qs30.45	qs31.45	qs32.45	qs33.45	qs36.95	qs38.95	qs40.25	qs41.25	qs42.25	qs43.25	qs44.75	qs45.75	qs46.75	qs47.75
REYNOLDS	Plain	qs17.50	qs18.50	qs19.50	qs23.50	qs25.00	qs26.00	qs27.50	qs29.00	qs30.00	qs33.50	qs34.50	qs35.50	qs36.50	qs37.50	qs38.50	qs42.00	qs44.00	qs45.25	qs46.25	qs47.25	qs48.75	qs49.75	qs50.75	qs51.75	qs52.75
	Non-Skid	qs18.50	qs19.50	qs20.50	qs24.50	qs26.00	qs27.00	qs28.50	qs30.00	qs31.00	qs34.50	qs35.50	qs36.50	qs37.50	qs38.50	qs39.50	qs43.00	qs45.00	qs46.25	qs47.25	qs48.25	qs49.75	qs50.75	qs51.75	qs52.75	
	Gray Tubes	qs18.50	qs19.50	qs20.50	qs24.50	qs26.00	qs27.00	qs28.50	qs30.00	qs31.00	qs34.50	qs35.50	qs36.50	qs37.50	qs38.50	qs39.50	qs43.00	qs45.00	qs46.25	qs47.25	qs48.25	qs49.75	qs50.75	qs51.75	qs52.75	
SAVAGE	Plain	qs12.00	qs13.00	qs14.00	qs16.05	qs17.05	qs18.45	qs19.95	qs20.95	qs21.95	qs25.45	qs26.45	qs27.45	qs28.45	qs29.45	qs30.45	qs33.95	qs35.95	qs37.25	qs38.25	qs39.25	qs40.25	qs41.75	qs42.75	qs43.75	qs44.75
	Non-Skid	qs13.00	qs14.00	qs15.00	qs17.05	qs18.05	qs19.45	qs20.95	qs21.95	qs22.95	qs26.45	qs27.45	qs28.45	qs29.45	qs30.45	qs31.45	qs34.95	qs36.95	qs38.25	qs39.25	qs40.25	qs41.25	qs42.75	qs43.75	qs44.75	qs45.75
	Gray Tubes	qs13.00	qs14.00	qs15.00	qs17.05	qs18.05	qs19.45	qs20.95	qs21.95	qs22.95	qs26.45	qs27.45	qs28.45	qs29.45	qs30.45	qs31.45	qs34.95	qs36.95	qs38.25	qs39.25	qs40.25	qs41.25	qs42.75	qs43.75	qs44.75	qs45.75
SCHAVOIR	Gray Tubes	qs3.05	qs3.10	qs3.15	qs3.75	qs3.80	qs3.85	qs4.45	qs4.50	qs4.55	qs5.15	qs5.20	qs5.25	qs5.30	qs5.35	qs5.40	qs6.00	qs6.05	qs6.10	qs6.15	qs6.20	qs6.25	qs6.30	qs6.35	qs6.40	qs6.45
	Non-Skid	qs3.10	qs3.15	qs3.20	qs3.80	qs3.85	qs3.90	qs4.50	qs4.55	qs4.60	qs5.20	qs5.25	qs5.30	qs5.35	qs5.40	qs5.45	qs6.05	qs6.10	qs6.15	qs6.20	qs6.25	qs6.30	qs6.35	qs6.40	qs6.45	qs6.50
	Gray Tubes	qs3.10	qs3.15	qs3.20	qs3.80	qs3.85	qs3.90	qs4.50	qs4.55	qs4.60	qs5.20	qs5.25	qs5.30	qs5.35	qs5.40	qs5.45	qs6.05	qs6.10	qs6.15	qs6.20	qs6.25	qs6.30	qs6.35	qs6.40	qs6.45	qs6.50
SEMPLER	Non-Skid	qs3.60	qs3.75	qs3.90	qs4.50	qs4.55	qs4.60	qs5.20	qs5.25	qs5.30	qs5.90	qs5.95	qs6.00	qs6.05	qs6.10	qs6.15	qs6.75	qs6.80	qs6.85	qs6.90	qs6.95	qs7.00	qs7.05	qs7.10	qs7.15	qs7.20
	Non-Skid	qs3.60	qs3.75	qs3.90	qs4.50	qs4.55	qs4.60	qs5.20	qs5.25	qs5.30	qs5.90	qs5.95	qs6.00	qs6.05	qs6.10	qs6.15	qs6.75	qs6.80	qs6.85	qs6.90	qs6.95	qs7.00	qs7.05	qs7.10	qs7.15	qs7.20
	Gray Tubes	qs3.60	qs3.75	qs3.90	qs4.50	qs4.55	qs4.60	qs5.20	qs5.25	qs5.30	qs5.90	qs5.95	qs6.00	qs6.05	qs6.10	qs6.15	qs6.75	qs6.80	qs6.85	qs6.90	qs6.95	qs7.00	qs7.05	qs7.10	qs7.15	qs7.20
SOUTHERN	Plain	qs12.80	qs13.80	qs14.80	qs18.80	qs20.30	qs21.30	qs22.80	qs24.30	qs25.30	qs															

Name	Trade Name and Trend	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
TEN BROECK (Continued)	Ribbed Gray Tubes	3.02	3.14	3.32	q19.48	q20.42	22.26	3.75	3.92	4.11	4.77	5.08	5.20	5.32	5.44	5.56	6.46	6.63	6.77	6.89	7.07	8.10	8.22	8.40	8.48	8.74.58
THERMOID	Non-Skid and Ribbed Trend Brown and Deluxe Red Tubes	q24.70	q24.85	q24.85	q31.25	q33.40	4.90	5.00	5.15	5.45	6.10	6.30	6.40	6.60	6.80	7.00	8.00	8.15	8.30	8.45	8.75	9.10	10.20	10.50	12.10	12.40
TYRIAN	Plain Haddite Non-Skid Extra Heavy Red	q14.30	q16.00	q17.60	q20.00	q21.15	23.05	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15	23.15
UNITED STATES	Plain Ueco Non-Skid Chain Non-Skid Nebby Cord Non-Skid Royal Cord Gray Tubes	13.25	13.80	16.85	17.95	18.85	20.80	21.85	22.85	23.85	24.85	25.85	26.85	27.85	28.85	29.85	30.85	31.85	32.85	33.85	34.85	35.85	36.85	37.85	38.85	39.85
VICTOR	Plain Ribbed Non-Skid Victor Gray Tubes Victor Red Tubes Springfield Tubes	17.10	18.05	19.05	20.05	21.05	22.05	23.05	24.05	25.05	26.05	27.05	28.05	29.05	30.05	31.05	32.05	33.05	34.05	35.05	36.05	37.05	38.05	39.05	40.05	41.05
VITALIC	Non-Skid Red and Gray Tubes Extra Heavy Gray Tubes	3.75	3.85	4.00	4.15	4.30	4.45	4.60	4.75	4.90	5.05	5.20	5.35	5.50	5.65	5.80	5.95	6.10	6.25	6.40	6.55	6.70	6.85	7.00	7.15	7.30
VULCAN	Gray Tubes Indian Red Tubes	3.30	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.75	3.80	3.85	3.90	3.95	4.00	4.05	4.10	4.15	4.20	4.25	4.30	4.35	4.40	4.45	4.50
WILSON	Wearwell Plain Wearwell Non-Skid Wearwell Gray Tubes Wearwell Red Tubes Wilson Non-Skid Wilson Gray Tubes Wilson Red Tubes	q12.55	q12.80	q13.15	q13.50	q13.85	q14.20	q14.55	q14.90	q15.25	q15.60	q15.95	q16.30	q16.65	q17.00	q17.35	q17.70	q18.05	q18.40	q18.75	q19.10	q19.45	q19.80	q20.15	q20.50	q20.85
WOODWORTH	Plain Non-Skid Tubes	23.90	25.30	27.90	32.60	33.25	36.30	38.40	40.50	42.60	44.70	46.80	48.90	51.00	53.10	55.20	57.30	59.40	61.50	63.60	65.70	67.80	69.90	72.00	74.10	76.20
ZEE-ZEE	"Z" Trend Climax Zee-Zee	3.81	4.11	4.35	4.71	4.83	4.93	5.05	5.17	5.29	5.41	5.53	5.65	5.77	5.89	6.01	6.13	6.25	6.37	6.49	6.61	6.73	6.85	6.97	7.09	7.21

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

These Tables are for your constant consultation and should be of great value in the conduct of your business—
SAVE THEM

Trucks

MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model		TIRES		MOTOR										TRANSMISSION										BRAKES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Wheelbase in Inches		Prices of Chassis		GOVERNOR										SPEED		FUEL SYS.		CLUTCH		GEARSET				Rear Axle		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Steering Gear																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Front	Rear	Kind	Sizes in Ins.	Make Engine	No. of Crankshaft Bearings	Cylinders	Bore and Stroke	S. A. E. H. P.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION	Electric System—Type and Make	Type	Drive	Make	Motor in r.p.m.	Truck in m.p.h.	Carburetor	Fuel Feed			Tank Location	Type	Make	Make	Type	Location	Speeds	Total Gear Reduction in High	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Key to abbreviations on page 25.

TRUCKS—Continued

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Key to abbreviations on page 25.

TRUCKS—Continued

TIRES			MOTOR										TRANSMISSION										BRAKES																																																
			GOVERNOR										SPEED		FUEL SYS.		CLUTCH		GEARSET			Rear Axle			Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear																																
			Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make				Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make				Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake																						
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
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Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
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Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
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Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake			
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High		Rear Axle		Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear	
Name and Model		Tons Capacity		Price of Chassis		Kind		Front		Rear		Cylinders Bore and Stroke		S. A. E. Hp.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		Ignition		Electric System—Type and Make		Type		Drive		Make		Motor in r.p.m.		Truck in m.p.h.		Carburetor Make		Fuel Feed		Tank Location		Type		Make		Type		Location		Speeds		Total Gear Reduction in High																			

MOTOR WORLD GUIDE

Lamp
Bulbs

Lamp
Bulbs

Car	HEAD LAMPS	SIDE LAMPS	TAIL LAMP	DASH LAMP	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks	Car	HEAD LAMPS	SIDE LAMPS	TAIL LAMP	DASH LAMP	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks	
Abbott-Detroit.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	Dash Edison D.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	Dash Edison D.
Allen.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	Dash lamp double.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	Dash lamp double.
American.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Anderson.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Apperson.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Arbuz.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Auburn 39 B.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Auburn 44.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Austin.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Bell.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Biddle.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Bimel D.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Bimel.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Brewster.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Brice.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Bour Davis.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Butt.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Cadillac.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Case.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Chalmers.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Chandler.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Cherrol.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Cole.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Columbia.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Commonwealth.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Crawford.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Crow-Ellhart.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Cunningham.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Daniels.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Davis.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Detroler.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Dispatch.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Dixie.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Doyle.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Dodge.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Dodge.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Dort.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Elgin.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Elkhart.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Empire.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Fiat.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Ford.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Franklin.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Glide.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Grant.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
HAL.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Halladay.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Harroun.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Haynes.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Holler.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Howard.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Hudson.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Hupmobile.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Inter-State.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Jackson.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Jeffery.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Jones.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Jordan.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
King.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Kissel.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	
Kline.	6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2		6-8 15	6-8 4H	6-8 4H	6-8 2	2	6-8	2	6-8	2	

ABBREVIATIONS:—C.B.—Circuit Breaker. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance S.—Single wiring system. Series—Series connection.

ABBREVIATIONS: C.B.—Circuit Breaker. D.—Double wiring system. E.D.—Edison double contact. E.S.—Edison single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance S.—Single wiring system. Series—Series connection.

Editorial Observation

Just a Few Thoughts

IT is a new year. That's an old bromidic statement, isn't it? But it is a new year just the same. With some it is a new fiscal year and with others it isn't. But it is a good thing to look about a bit and see how the world is moving.

The shows all over the country are about the same as last year. That is, they are going to be held on just as a big a scale as ever. Minneapolis expects to have the biggest automobile show that was ever held in the world. Milwaukee is putting on a commercial transportation exhibit. The truck end of affairs will get prominence this year.

Some truck sellers have solicited sales on the grounds that the passenger car business is going to be all shot to pieces by the government and the war and that folks should buy trucks, not "pleasure" cars. Bad talk, boys! Bad talk! Let's not forget that we are engaged in the passenger car business, not the pleasure car business and that the only excuse the truck has for existence is that it is a prime essential. If it can't stand on its own feet it had better sit down and subside. It is one of the biggest things in the world to-day. So let's call it that and cut out our knocking. There are knockers enough outside the motor car business these days without any of the insiders using the hammer.

Somebody "somewhere in America" says some jobbers talk to fellow jobbers and to dealers about the folly of price-cutting and then go home and figure out the most gentlemanly way of camouflaging unethical business tactics. Remember, boys, that old yarn about the glass house and the paving bricks? Some of us need new clothes, so if these fit put 'em on and wear 'em.

Oh, yes! We almost forgot the grafting chauffeur. What are we going to do about that chap? Shall we coddle or can him? Has he any right to demand part of our profits? Have we any right to give them to him? Gosh, but he's a tough problem, isn't he? And when the motor car man has a tough problem he always lies down and dies, doesn't he? He does NOT.

In the same class is the tipping evil. We all tip waiters but do we want our customers to be tipping our employees? Let's be honest about it now—do we? Let's stop the practice.

How about going on a cash basis? It is easily done and it makes business a pleasure instead of a worry. Right now it seems to be a case of "everybody's doing it." Get on the band-wagon. It rides easier.

The jobbers' association started out some time ago to do some standardization work on labels and packages. It made some very good recommendations, some of which were at once adopted by some of the jobbers. The others had—or thought they had—good reasons for not adopting the recommendations. But don't forget that standardization cuts the cost of doing business, and the cost of doing business is one of our war-time problems. Let's standardize.

That same old jobbers' association—which everybody expected would be in jail long before this, but which is still on deck—is going to have a meeting this month. It can well afford to make this a war-time convention. Business adjustments are necessary, or, if not yet, soon will be. The jobbers ought to bring out some corking good thoughts and get ready to twist things around and get squared away for the big business that seems to be on the way for the jobber no matter if there is a war. It looks as though the meeting would be a corker.

And then there is the National Automobile Dealers' Association which fought its way into existence last summer. It has been ever since then catching its breath but looks now as though it would get all squared away at its meeting during the Chicago show and start out for the big things its founders have in mind. It has been bothered by a lot of twisted details during its early days, but things are better now and the future looks much rosier. There is a need now for this organization if there ever was a need. Dealers may be interested in knowing that in Colorado and its suburbs the state associations have two memberships. One is for dealers only and an extra \$10 is charged, covering membership in the N. A. D. A. That plan should help build the national if pursued in other sections.

That's covering quite a lot of ground in one page, isn't it? But, seriously now, read it over again and walk around through your building, come back and sit down and see if there isn't something you ought to do to your business to give it a fair chance in 1918.

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome—especially if they are timely and brief.—THE EDITOR.

Our Roadman Says

Editor Motor World: In my work in Stockton and Sacramento I found boosters galore, and no knockers, and possibly the most pleasing interview I had was with Mr. L. L. Campbell of the Upper Stockton Garage, Sacramento.

I called on this man in September or October, 1916, and found him operating a little garage on the outskirts of Sacramento. He was busy painting the body of a car and at first would not stop to talk, but after a short while he finally consented to hear my story. When I got through he said he heard about those things before, and I kept on showing some other features of the Motor World, and he said: "Well, two dollars doesn't grow on bushes and I don't feel like throwing it away, and I cannot afford to spend it."

I answered that it wasn't a question of whether he could afford to spend two dollars or not but whether he could afford to be without Motor World service at any price. He being still unconvinced I said: "Now, Mr. Campbell there is no way for me to show you Motor World service unless you subscribe to it, we do not send sample subscriptions and I cannot tell you to buy it on the newsstands because it is a trade magazine. I have come pretty far out to see you. Just give me a dollar, take a chance and I'll send you the Motor World for six months."

His answer was: "All right, you've talked a dollar's worth."

I called on him again last Saturday; the transformation was surprising. He had paid \$275 for a cash register, because to use his own words, before he read Motor World, "I never could tell how much money I took in."

The garage was clean and attractive, in spite of a dirt floor. He had built nice partitions and was making more improvements and during the year he had bought the lot on which the garage was built, had bought the lot adjoining, paid cash for it, had taken a trip with his wife to South Carolina last summer, and had so systematized his business that during his two months' absence the man whom he had left in charge had cleared \$300 clean profit for him—and Mr. Campbell was willing to say that "Motor World did it."

And one further fact stands out and looms up as high as Old Baldy: The firms that subscribe to Motor World are

there the following year and the year after that and they grow with each year—the fellows who don't read it either fall by the wayside or remain stationary or go further down. This is not shop talk either; I can cite you scores of instances proving the above assertion.—J. B. Adatte, Motor World Pacific Coast Representative.

Motor Truck Convoy Finishes at Baltimore

Twenty-nine of the 30 Trucks That
Started Reach Destination With-
out Trouble—The Route

WASHINGTON, D. C., Dec. 29—The motor truck convoy which left Detroit Dec. 14 to make the first test overland drive-away to the Eastern seaboard arrived at Baltimore, its American terminal, yesterday. One of the 30 trucks starting the journey failed to finish, having been struck by a train en route. The trip marks the beginning of a new era of huge and vast drive-aways. Orders were issued immediately following the end of the journey by Major Miller to all motor companies shipping war trucks East to utilize the highways of the nation for drive-aways in all instances. The journey was made slowly under orders from the War Department, averaging 50 miles a day.

The complete convoy comprised 28 3-ton Packard motor trucks, 2 Packard oil tank trucks, a Dodge five-passenger car, a Dodge roadster, a Dodge light delivery truck and a General Motors light ambulance truck. The personnel included: Capt. Bennett Bronson, Quartermaster Corps, in charge of convoy; Lieut. C. A. Riley, Quartermaster Corps, in charge of motor train; Lieut. L. J. Ward, U. S. M. C., medical officer in charge; eighty National Army men; Capt. E. B. Butchers, representing U. S. Engineers Corps, and H. C. Ostermann, representing Highways Transport Committee.

The trip is particularly remarkable in view of the fact that none of the drivers has ever driven any truck before. They were all men taken from an infantry camp and placed at the wheel. Weather conditions were the most adverse possible. The convoy left Detroit at 4 be-

low zero and fought through snow all the way up to Pennsylvania. Schools were let out along the route, business, military and professional men turned out to give welcome to the trucks, and the Red Cross had hot meals ready for the soldiers at every stop.

The trip absolutely proves the feasibility of motor truck transportation in all kinds of weather. Following is an outline of the journey:

The U. S. Motor Transport left Detroit December 14, at 10 A. M., from the Packard factory proceeding through Detroit without difficulty, as the streets were cleared of traffic and no snow was found. The transport arrived at Monroe, Michigan, at 9 P. M. after laying 3½ miles west of Monroe 3 hours attempting to clear the route of snow. The distance covered the first day was 45 miles.

The transport arrived at Toledo 5.30 P. M. without encountering any particular difficulty between Monroe and Toledo with the exception of short stretches where the road had not been dragged and light traffic had broken the drifts into a zig-zag line. No effort had been made by county officials to scrape off the roads. In many instances the road was broken on one side, covering a portion of the shoulder of the road, making it dangerous to heavy truck transportation. Distance on the second day 18 miles.

They left Toledo 7.30 A. M., Dec. 16th, passed to Norwalk, Ohio, and arrived at 7.30 P. M. No effort had been made by the county and township officials to clear the roads and considerable snow drift trouble was encountered. The mileage of the day was 62 miles.

Leaving Norwalk at 8.20 A. M. Dec. 17th, the convoy found the road, with a few exceptions, well cleared of snow and experienced no difficulty in reaching Cleveland at 6 P. M., covering 58 miles for the day.

It left Cleveland at 9 A. M. Dec. 18 and arrived at Ravenna, Ohio, at 5 p.m. The road showed some care, but work had not been completed in an intelligent manner and high centers were encountered. From Ravenna to Warren, through misunderstanding, the route was changed and 24 miles of bad roads were encountered. Later it was learned that officials had cleared the road on the original routing. Trucks arrived at Warren at 3 A. M., covering 65.5 miles.

On the route from Ravenna to Warren truck No. 21 was struck by a passenger train and the driver was killed. This necessitated laying over at Warren on Dec. 19.

The party left Warren at 7.15 A. M. Dec. 20 and arrived at New Brighton at 8 P. M., covering 54.8 miles. Considerable difficulty was encountered on that section of the road known as the "cut-off" between New Springfield and Unity. A little graveling had been done by Mahoning county and nothing at all by the Columbiana county. The stretch was narrow and a primitive dirt road. Three sharp right angle turns were found. After the trucks passed over the road, ruts a foot deep were left.

New Brighton was left at 8.20 A. M. and Pittsburgh reached at 2 P. M. Dec. 21. No difficulty was experienced over this 32 miles of the trip.

From Pittsburgh east the journey was made without difficulty, road conditions in Pennsylvania and Maryland being found in excellent shape.

Credit is given by members of the party to the State Highway Departments of Pennsylvania and Maryland for the remarkable condition of all roads. The last 232.9 miles were made in 7 days.

The trip was educational and resulted in a conference in Washington with the War Department about the lessons learned on the trip. The success of the trip is indicated by the fact that 6 similar truck trains have been ordered to leave Detroit next week, carrying supplies to the seaboard.

The snow organization was bad in Michigan and Ohio, but excellent in Pennsylvania and Maryland. The Highway Transport Committee would like all highway departments to remember that trucks demand a wider clearance of the roads than passenger cars.

The RETAIL NEWS

EAST

Chesapeake Tire & Rubber Co., Baltimore, has moved to larger quarters at 531 North Howard Street.

Downtown Motor Co., Baltimore, has been purchased by Howard M. Cone, formerly general manager.

Habersham-Miller, Inc., Republic truck distributor, has moved to larger quarters at 131 West North Avenue, Baltimore.

SOUTH

Deal Garage Co., Gainesville, Ga., has installed a vulcanizing plant and filling station.

Darby's Garage, Monroe, Ga., has added a vulcanizing plant and free battery service.

New Garages

J. Morgan.....Pembroke, Ga.
Frank Pilcher.....Thomson, Ga.
C. R. & C. E. Wilson, Jr.....Rissellville, Ala.

MIDDLE WEST

Vern Loomis, Lake Odessa, Mich., has purchased the garage of Ross Hammond, Olivet, Mich.

Central Auto & Accessory Co., Bay City, Mich., has leased Miller Bros.' garage, Standish, Mich., and will conduct Chevrolet sales and service station.

Pinkelman-Clarke & Co., Quincy, have opened a tire sales and vulcanizing shop with free road service. The company will handle Dayton and Diamond tires.

New Garages

Postal Turner Auto Co.....Ewart, Mich.
A. F. Messner,

Main Street, Benton Harbor, Mich.
The Electric Service Co.....Decatur, Ill.
J. H. Gombart.....Galesburg, Ill.

NORTHWEST

Morse Rubber Co., Inc., 920 Marquette Avenue, Minneapolis, has taken over the business of Frank L. Morse.

Elmer Larson and W. A. Lundquist, Graceville, Minn., have bought the Cota Bros. garage.

B. A. Stokke, Havre, Mont., has bought the Wentworth Garage and added a machine shop.

Ben. Martinson and Charles Wilkenson, Ruthton, Minn., have bought the L. H. Lawrence garage.

Carl Irgvalson, Ivanhoe, Minn., has bought the Briffet & Westman garage.

C. J. Steele, Arco, Minn., has bought the Foulds & Danielson garage.

Wild Rose Realty Co., Wild Rose, S. D., has bought the E. C. Norman garage at Winthrop, Minn.

J. S. Sorlie and J. E. Ruud, Albert Lea, Minn., have bought the interest of H. W. Sieglaff in the Sieglaff-Sorlie garage, East Clark Street.

Leonard Peppard, Drayton, N. D., has bought the Harry Wallace interest in the Modern garage.

C. H. Flaherty and W. J. Ryan, Spencer, Iowa, have sold the Service Tire and Rubber Co. to W. B. Sweppe and Z. E. Armstrong.

Orange Rawson and L. G. Ritenhouse, Arlington, Iowa, have bought D. A. Newton's garage.

Studebaker Wilton, Inc., Omaha, has opened a branch salesroom and service station at Modale, Iowa. Frank L. Hammer is manager.

W. M. Clement Motor Co., Omaha, is enlarging its show rooms.

The Willard Storage Battery Service Sta-

tion, Council Bluffs, has doubled its floor space.

New Garages

Buckholz and Francois.....Dubuque
Charles Bell.....Council Bluffs
F. G. Hinegarder.....Toledo, Iowa
G. M. Heizerman.....Albia, Iowa
J. H. Cutoff.....Omaha
M. D. Cameron.....Omaha
Erick Gjovig.....Norman, Minn.
Zwick Bros. (addition).....Lake City, Minn.
George LaSell.....Millerton, N. D.
Sturr-Bullard Motor Co.,
1330 Nicollett Avenue, Minneapolis

MOUNTAIN

Morrison Motor Car Co., Ft. Collins, Colo., has moved to a new salesroom.

Sanford & Riddle have bought the Hawkins Garage, Ft. Collins, Colo.

Laporte Avenue Garage, Ft. Collins, Colo., has been sold to Van Ham & Brown.

O. J. Heckelsweiler has purchased the Grubb Garage, Ft. Collins, Colo.

Spiker & Jeffreys, Lewiston, Idaho, have moved to new quarters on Eighth and Main Streets. The building is 60 x 178, with storage room for 150 cars.

New Garages

Lincoln Highway Garage (addition)
Wellington, Colo.
John Schuler.....Brush, Colo.
William Hillman.....Raymer, Colo.
Ideal Auto & Machine Co.....Sterling, Colo.

SOUTHWEST

The Dallas Oakland Co., Dallas, has enlarged its salesrooms.

The Overland Co., Dallas, is erecting a new building which will cost \$150,000 on South Ervay Street.

The Bearings Service Co., Dallas, has moved into new quarters at 2034 Main Street.

Starzer & Jansing, Norman, Okla., have bought the O. C. Banks Garage.

W. S. Bradshaw, Mangum, Okla., has sold an interest in his garage to L. M. Macum.

Platte Woodruff, Sentinel, Okla., has bought the garage of H. B. Winburn.

Frank Alexander and J. D. Pack, Arkansas City, have sold the Coyle County Motor Co. to A. P. Turner and J. C. Bartlett.

J. E. Slenz, Protection, Kan., has bought the Tom Dorsey garage.

Byron W. Myers, Goodland, Kan., has opened a vulcanizing plant in the Lemmer building.

Rex Welty, Hill City, Kan., will open a vulcanizing and tire repairshop.

O. H. Bond Motor Car Co., Parsons, Kan., has bought the Western Auto Supply Co. from Ben Pepperdine.

Quick Tire Service, Inc., Kansas City, has bought the tire service department of the Gustin-Bacon Mfg. Co., and has leased its building at Twenty-seventh Street and McGee Road.

The Plainview Rubber Co., Plainview, Tex., has bought the stock of the G. C. Electric Co.

Aubrey Osings, Centralia, Mo., has sold his garage to David Montgomery.

R. B. Goffey, Stanberry, Mo., has opened a vulcanizing plant.

Urle & Noel, Lamonte, Mo., has succeeded C. R. Urle in the local garage.

C. C. Clark, Dexter, Mo., has bought the Wm. Dugan garage.

C. E. Beavers, Neosho, Mo., has bought the interest of L. Lowe in the Four B Garage & Taxi Co.

W. A. Schneider, Sikeston, Mo., has opened a vulcanizing shop.

J. W. Graves, Mountain View, Mo., has bought a half interest in the City Garage from Wm. Arthur.

H. M. Balch, Wichita, Kan., has bought the garage of Fred Conner.

The Luther-McCoy Motor Co., Dodge City, Kan., has bought the vulcanizing business and equipment of W. R. Archer.

T. M. Muckenthaler, Wamego, Kan., has sold his interests in the Wamego Garage to his partner, John Noll.

C. O. Talley, Hill City, Kan., has opened a vulcanizing shop.

New Garages

A. Cremb & F. I. Merrill.....Ellis, Kan.
Chas. Wahl (addition).....McCracken, Kan.
Will Rogers (addition).....Claremore, Okla.
Thomas & Finch.....Boise City
J. H. McCloskey.....Ranger, Tex.
Sam Gates.....Flat River, Mo.
A. C. Randall.....Sawyer, Kan.
Ray Cole.....Smith Center, Kan.
Connor Taxi & Baggage Co.....Joplin, Mo.
R. G. Beezley.....Steelville, Mo.
Independence Motor Co.....Independence, Kan.
Gettler Bros.....Valley Falls, Kan.
Tulos & Estis.....Pauls Valley, Okla.

PACIFIC COAST

Eldridge Buick Co., Seattle, has remodeled its building and added offices and showrooms for the truck and accessory departments.

M. F. Sterling and A. Kennedy, Castle Rock, Wash., have installed a vulcanizing plant in the Castle Rock Garage.

Malcolm Tire Co., Portland, has opened a salesroom at 82 Broadway, North, for seconds.

New Garages

J. D. Lowman.....Seattle
Eastman Motor Co.....Spokane
Pomeroy Garage.....Pomeroy, Wash.
Universal Auto Co.,
711 Second Avenue, Spokane
Portland Garage.....Portland
C. H. Carl.....Carlton, Ore.
R. T. Mason.....3636 McKinley Avenue, Tacoma

Wilmington Expects Big Year

WILMINGTON, DEL., Dec. 31—On the eve of the year 1918 local motordom is decidedly optimistic as to the prospects. The year ending to-day has been the best in history for the local trade, according to statements of some of the leading dealers, and, notwithstanding the fact that the country is at war, an even better business year is believed to be in store. The use of commercial vehicles has been wonderfully developed here this year.

In Wilmington's normal territory—the State of Delaware and part of Maryland—the entire area is within a day's travel of Wilmington, Philadelphia and Baltimore, as well as many smaller cities, which has brought the produce grower to a realization of the fact that the motor car is his only salvation. The result has been recent purchases of cars by farmers who never gave the idea a thought before, but who have been compelled to do so to get their goods to market.

Three New Studebaker Models

Two Sixes and a Four Quite Different from Previous Models

The Studebaker Corp. has announced three new cars for 1918. These include a Big Six, 60 hp., chassis of 126 in. wheelbase; a Light Six, 50 hp., chassis of 119 in. wheelbase, and a Four, 35 hp., chassis of 112 in. wheelbase. A 7-passenger touring body is mounted on the Big Six, a 5-passenger touring, a 4-passenger and a 2-passenger roadster on the Light Six and a 5-passenger touring and a 2-passenger roadster body on the Four.

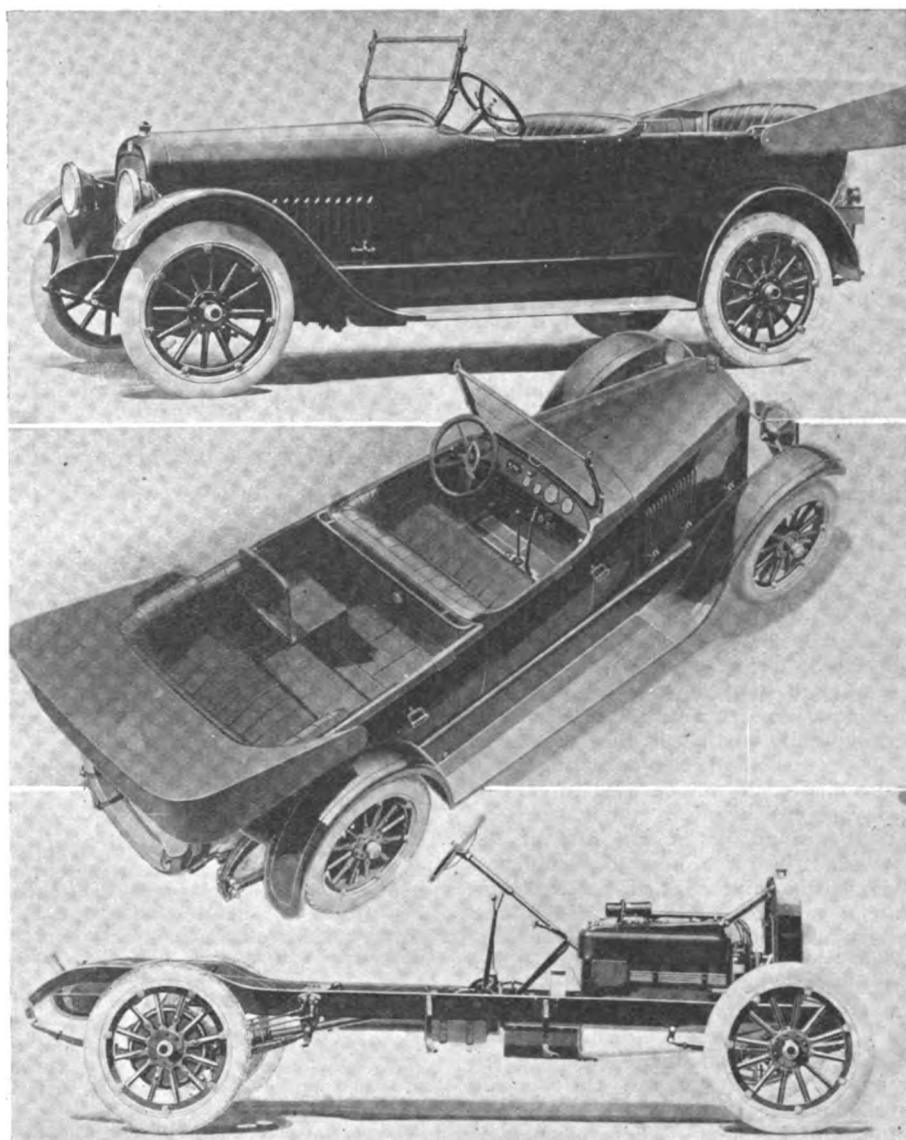
The new cars have full stream line bodies with a distinctive bevel edge. The seats are low hung, being deep and comfortable; the windshield is of the slanting, rain-vision type, and a long robe and hand rail extends across the full width of the front seats. The auxiliary seats in the 7-passenger car fold into the back of the front seats and are enclosed by a leather drop curtain.

The engines are of the L-head type, with the cylinders cast in block. The Big Six is 3 $\frac{1}{4}$ in. bore by 5 in. stroke, developing 60 hp.; the Light Six is 3 $\frac{1}{2}$ in. bore by 5 in. stroke, developing 50 hp., and the Four is 3 $\frac{1}{2}$ in. bore by 5 in. stroke, developing 35 hp. The cylinder head is detachable in the Big Six and the cylinder blocks are cast integral in the Light Six and the Four. All main bearings are of die cast bronze backed bab-bitt. Crankshafts and camshafts are of chrome-nickel steel, drop forged and doubly heat treated. A change in valve timing together with an increase in lift from $\frac{1}{4}$ to $\frac{5}{16}$ in. and improved carburetion and manifold gives a material increase in power and smoother operation.

A hot spot inlet manifold affords better fuel economy. The crankcase has also been stiffened which tends to reduce the vibration at high speeds. Lubrication is effected by a combined splash and distributing system in which the splash is reinforced by a gear oil pump in which the oil is supplied to the main and cam shaft bearings.

The clutch is of the cone type, using an aluminum spider which is connected to the gearset by means of a Thermoid-Hardy coupling. The gearset is located amidships and is of the three speed type with center control. The drive is transmitted through two Spicer joints to a semi-floating rear axle using spiral bevel driving gears.

Hotchkiss drive is employed in which the torque is taken up by semi-elliptic underslung rear springs, 56 in. long x 2 in. wide in the Big Six and Light Six, and 50 $\frac{1}{4}$ in. x 2 in. in the Four.



*The new Studebaker Light Six touring model
The Larger Six seven-passenger car
The chassis of the Light Six model*

The bottle neck type of frame is used which is made from carbon steel. These frames vary in depth from 5 $\frac{1}{2}$ in. for the Big Six to 4 $\frac{1}{2}$ in. for the Four, and are made from stock 5/32 in. thick. The frames are well braced with five cross members to provide ample strength.

The gear ratio on the Big Six is 3.7 to 1, on the Light Six 4 to 1, and 4.08 to 1 on the Four. The tire sizes for the Big Six are 33 x 4 $\frac{1}{2}$, Light Six, 32 x 4, and Four, 32 x 3 $\frac{1}{2}$. The equipment includes speedometer, oil gage, battery indicator, carburetor controls, gasoline gage, electric horn, complete set of tools and a robe and foot rail. The Big and Light Sixes have mahogany instrument boards and mahogany panel with glove box on the back of the front seats. The Big Six is equipped with ammeter, Waltham clock, speedometer and tonneau lamp.

Let Contracts for 4100 Trucks

WASHINGTON, D. C., Dec. 29—Contracts for 4100 war trucks for service in the Aircraft division of the Signal Corps have been awarded as follows:

1 $\frac{1}{2}$ -Ton Trucks

Signal Motor Truck Co.	500
Republic Motor Truck Co.	500
Denby Motor Truck Co.	500
General Motors Truck Co.	700

3 $\frac{1}{2}$ -Ton Trucks

Standard Motor Truck Co.	250
United Motor Truck Co. (Grand Rapids)	250
Federal Motor Truck Co.	500
Kelly-Springfield Truck Co.	500
Velle Motor Co.	400

These trucks are ordered for delivery early in 1918.

Two Things That the War Will Demand

1—A car that is economical to operate

2—A dealer who is an A-1 business man

NEW YORK, Dec. 28.—The effect of the war upon the automobile industry was considered last evening at a meeting of the Metropolitan Section of the S. A. E. The meeting was without precedent in the history of the section in that it departed radically from engineering lines and became a discussion of the merchandising aspect of the business.

The discussion began along engineering lines with a paper by A. Ludlow Clayden, of Automotive Industries, who pointed out the probable changes that will come in the design of cars as a result of the war. A number of large New York dealers listened with interest and took part in the discussions. Clayden pointed out that we are passing from an era in which we are trading "What will she do on high?" for "What will she do to the gallon?"

He stated that the cars that are now in demand are those that are economical and generally small, and that the car of 10 years hence will be operating on a fuel which could not be used in cars of to-day, even though it might then be called gasoline, as is our fuel of the present. The price, he said, would possibly be one-third that of present commercial gasoline.

The merchandising aspect of the situation, the effect of the war on dealers now, during the war and after the war, was treated in a paper by Ray W. Sherman, editor of Motor World. Dealers, he said, must alter their businesses in many ways if they are to continue throughout the war with satisfactory volumes of business. Where business is affected at one point, volume must be created at another point. More aggressive methods must be used and business and merchandising must become more efficient. The end-of-the-war period should see a highly efficient group of dealer-organizations all ready to step forward into the peace period with great prospects of big business.

Emlen H. Hare, president of the Packard Motor Car Co. of New York, told how his company had analyzed the situation and discovered why it is essential that business be not permitted to slacken. He said patriotism is not a legitimate excuse for not buying goods, and told how the New York Packard branch is running newspaper advertising to build public opinion of this kind.

William L. Colt, manager of the Overland business in this city, expressed similar sentiments and emphasized the fact that it is the duty of the dealer to keep himself fit for continuous business.

Alfred Reeves, general manager of the N. A. C. C., told how the affairs of the

industry are being handled in Washington.

The principle of expansion of industry, as an industrial war-time necessity, was asserted by David Beecroft, directing editor of Motor Age. He decried the mistaken policy in some sources that war

results must come through curtailments. He declared that our whole industrial organization must be expanded for greater needs rather than be cut down to make room for new products.

The papers by Clayden and Sherman follow.

Dealer Must Fit Self to Situation

He Must Adjust His Business to the New Conditions—War a Crucible That Will Refine the Trade

IN considering the effect of the war upon dealers, said Sherman, it seems logical that we should consider the effects now, in the future during the war and after the war.

So far as the present effects are concerned it seems that dealers are divided into about three classes:

1—The class that has been very adversely affected.

2—The class that is in the transitory stage.

3—The class that has not been affected or has so revamped itself that it is not suffering from a business depression.

The first class has in some cases been pushed out of business by circumstances, and some of these circumstances are due as much to the dealer as to the war. The dealer who had his business on a sound foundation, who was prepared to meet changes as they came and who was long on figuring in emergencies fared well, but the less capable element in the trade has been hit the hardest. This, however, is sometimes due to the car, for, as we may discuss elsewhere, not all cars sell well. There are good sellers and bad sellers in these times.

The second class is the dealer who has a good organization, who has had pretty good agencies and who has enjoyed a good business and now sees it falling off. He knows he is in a bad hole and stands in danger of getting in a worse hole, but he has not grasped the situation in a firm and able manner for the purpose of working out his salvation. There are certain things every dealer must do at this time and the dealer who doesn't take hold of the situation and work out the necessary adaptations must obviously suffer.

The third class of dealers is perhaps small, especially in this part of the country. Its business is good. There are a few dealers who are selling more cars at present—or at least during the last few months—than they sold a year ago. In the western farming sections the business is not so bad. Some of the farmers are holding off on winter buying but say they will buy in the spring. Their reluctance is due to the farmer's frame of mind and his habits rather than to any business cause. Dealers in those sections are suffering somewhat from winter depression, but not so much from war depression.

The reason certain other dealers in sections where the depression is felt most have not slumped is due to their methods and their

cars. There are some cars that would be hard to sell at this time by any organization. The demand is not for the big heavy cars but rather for the smaller and more economical cars. When it comes to big cars they can be sold provided they happen to be in the millionaire class. But a big heavy car that is in the medium-priced class is not so great an attraction.

Limousines are not easy to sell. Many prosperous owners have discharged their chauffeurs and are buying sedans. One dealer I know has a waiting list of two or three dozen chauffeurs who have been discharged by their owners. Another dealer says he must convert his stock of limousines into cash at cost in order not to stand a greater loss by carrying them too long.

Aggressive sales methods are making things better for some dealers. The organization that goes after business at this time with the right sort of car can get the business. It can even hold up to last year's record.

Thus far the possession of a good agency and the use of aggressive methods have helped some dealers get by, but if the war should last a long period all dealers would have to go into the self-adjustment business.

The war will take mechanics, salesmen, office workers and all sorts of employees. There is no use denying it. They will be taken. There will be a shortage if the war lasts very long, and we should plan on a long war, not a short war. This will necessitate adjustments.

What should the dealer be doing on this score to-day? He should take a pad and pencil, go through his whole works, set down the employees who can be replaced by women or older men, mark down shifts that can be made where substitutions are necessary and get all ready so that when the shortage comes he will have plans all ready for putting into effect. He also should scrutinize every part of his business with an eye to possible changes. When he finds the war is going to take a piece of marble out of his business structure he should have a good brick all ready to put in.

In Motor World this week we have several pages of adjustments and war ideas already in use by dealers. One man took his used cars, painted them yellow and is netting \$100 a week in the taxicab business. Others are putting in machinery that will save labor.

A great many are going on a cash basis in order to reduce working capital. Some are employing women, although the practice has not spread far as yet—but it must. Dealers should look at the woman worker as something other than an amusing spectacle.

Other activities being taken up by dealers are trucks, tractors, farm lighting, etc.

Service is getting attention. All dealers would like to see it defined and restricted. Certain other economies will be worked out. Service stations may turn to repairing. Service must be made to pay a profit.

Eventually those businesses that go through the crucible of war will come out refined. They will be in a wonderfully efficient condition for making enormous strides in the period of peace. The automobile trade will be given a grueling schooling in penny-fingering and cost-watching.

The war ought to solve the used car problem if it does nothing else. It should cause used cars to bring higher prices. The dealer who has a lot of ramshackles in the back room can later this year get them out and make them run. Or he can scrap them and get good money for the materials. Some of these oldtimers are filled with aluminum and other much-needed materials.

There is a mistaken idea of economy on the question of car buying among the public and it is causing \$2,000 buyers to pay only \$1,200 and the \$700 prospect to pick up a good used car.

If the war lasts two or three years more dealers will operate on close lines. Their volume will depend on what they make it.

If it falls off in one spot they must make it up in another.

They will have women employees. They will advertise and follow up more efficiently and intensively. They will grab every chance to make a dollar—which they should have done long ago.

Garages and repairshops should be busy. With the old cars being run another year the four and one-quarter million cars must have repairs. Repairing is one line that seems to be in excellent condition at this very moment. The sale of accessories of the right sort should hold up. The truck field should be prosperous. The accessory jobber looks like a winner unless something we cannot now foresee happens.

And then—after the war. The people who would have bought cars but didn't because of the war are going to buy. They are going to spend money in the spirit of a boy let out of school. The lid will be off. Industry should spin. Of course, there will be after-war readjustment problems, but there should be a demand for all kinds of goods and no good American could sit easy and see a perfectly good demand for anything go to waste. It is not the custom of the country.

Probably after the war a lot of less efficient dealers and garagemen will spring up. That always happens in any trade that is prosperous. And then we shall have many of our old troubles all over again.

But it does seem as though some of our problems of service and wild American waste should have been blotted out forever.

huge car, an ideal fostered by advertising and by salesmen everywhere. Without doubt the big car has its comforts, but the little car has conveniences which more than counterbalance. Nobody who has tried both would ever choose a 140-in. wheelbase car for shopping in preference to a 110-in. one, provided both were of the same standard of engineering. At present engineers then have two ways to work—one towards a car which is more economical because it is smaller; another towards a car which is more economical because it is inherently better.

It is just a personal opinion, perhaps worth quoting in passing, that the greatest trade open to a magnetic system of transmission is in a car about 110-in. wheelbase, a 200-cu. in. engine and made in a quality which will make its fair price around \$2,000—a car which is not meant to do much on high, a car perhaps which has no high at all, automatic gear ratio variation being a part of the transmission.

There is another thing. We are nearly at the end of gasoline as we know it. No doubt the fuel ten years hence will still be called gasoline, but it will not operate a 1918 gasoline car. We have got to learn to sacrifice the absurdities of "flexibility" existing in the modern engine in order to use a fuel which we will be able to buy for a third the present price. There is nothing to prevent a man lighting cigars with dollar bills if he wants to, but the world at large thinks it silly when matches are so cheap. At present the automobile is running on dollar bills instead of dimes, with little more real reason.

That it is doing so is due to the fact that the ideals we have worked for have been ideals which ended perforce with the coming of war. The automobile has been one of the great inventions of civilization. It has altered for the better conditions of life in almost every country on earth. Yet all the time it was doing this it was being designed for pleasurable performance rather than for the useful work which formed the major reason for its existence.

If motoring were merely a luxury now, as it used to be 15 years or more ago, then the annual output of cars in America would perhaps be 100,000 or less. The world has taken a luxury offered to it and used that luxury as a necessity. It is time that the true reason for the enormous demand for cars was appreciated and reflected in automobile engineering and design.

Scrap Metal Prices

NEW YORK, Dec. 26—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age*:

	Cents Per lb.
Copper, heavy and crucible.....	22.00
Copper, heavy and wire.....	21.00
Copper, light and bottoms.....	19.00 to 19.50
Brass, heavy ..	14.25 to 14.50
Brass, light ..	10.50 to 10.75
Heavy machine composition.....	20.00 to 21.00
No. 1 yellow brass turnings.....	14.00 to 14.25
No. 1 red brass or composition turnings.....	17.50
Lead, heavy ..	5.75
Lead, tea ..	4.25
Zinc ..	5.00

Picard Employees Dine

NEW YORK, Dec. 27—Seventy-four employees of the J. A. Picard Co. attended the organization's annual dinner last night at the Cafe Des Beaux Arts. An address was made by Vice-President Waller, of the Gotham National Bank. A silver plaque was presented to A. J. Picard and a cigarette case to General Manager Harry Williams.

"What Will She Do to the Gallon?"

New Standard of Value in Cars at Hand, Says Clayden—Car to Be Bigger Factor in Nation's Life

WAR is having an effect upon every last detail of civilized life, said Clayden, and it is going to affect automobile design just as much as other things. We are to-day entering an era in which the highest ideal of a man or of a nation is the ideal of economy. Never before in history has economy been more admired than extravagance, never before has a change in public sentiment been made so swiftly. The American nation, a leader in so many things, has for fifty years been proud of the fact that its resources permitted it to be a leader in extravagance. Like the wealthy man who demands the best of everything, America has been the wealthy nation able to pay for whatever it wanted. If spending was to be a human ideal, then the American was better able to spend than a man of any other nation.

If these premises are sound, then the American passenger car of the near future is going to be one in which economy is a strong feature—a car of which the first cost, plus the maintenance cost over a period of years, will make a good showing. We are about to exchange "what will she do on high?" for "what will she do to the gallon?"

It is a fact that already those cars which have a reputation for economical operation have suffered far less than those which are known as wonderful performers.

The volume of passenger car business being done to-day represents little more than the essential trade which supplies transportation to those who need it. The whole agricultural life of the whole United States and a good half of the business life of small towns and large cities depend to-day upon passenger car transportation. The farmer's time table of his week's work is laid out on a schedule that necessitates a car to get him from point to point. And on the city side,

just imagine, say Philadelphia, bereft of passenger cars. Think of the utter impossibility of living in Philadelphia's residential districts without road transportation.

THE LAST TEN YEARS OF AMERICAN TOWN PLANNING HAS BEEN ON AN AUTOMOBILE BASIS.

THE AMAZING INCREASE IN AMERICA'S AGRICULTURAL OUTPUT IS DUE TO THE RAPIDITY OF GROUND COVERING PROVIDED BY THE AUTOMOBILE.

But the average American car has exacted too high a price for the service it rendered. Not too high a first price, but too high a maintenance price. It has been too big, too heavy, too powerful; too extravagant of fuel, of oil and of tires; too frequently in need of repair.

To take just one instance: it is absurd to utilize two tons of machinery to carry a man ten miles from his home to his office. It is equally absurd to provide his car with an engine which normally has a fuel efficiency of 10 per cent, when it could have a 20 per cent efficiency by sacrificing the ability to crawl on high gear.

I do not wish to quote the European example as in any sense a criticism; but it is true that European cars have been much less costly to operate. They have to be because of the much smaller average wealth. The English or French user simply had to consider running expense. He had to have an economical car or none. This is the reason why motorcycles have had such an immense vogue on the other side of the Atlantic. The average American says "I can't ride a motorcycle. It isn't in keeping with my position; my friends would roast the hide off me." True enough last year—but will it be true next year?

Similarly it has been an ideal to have a

A Department of

BETTER MECHANICS

No. 50

Speedometer Testing, Care and Installation

By S. T. Williams

IN spite of the fact that most car owners cannot estimate their speed within several miles, many of them insist that something is the matter with their speedometer, when in fact it is registering correctly.

In cases of this kind a timed test run over a measured course, made at a constant speed, is about the simplest method of checking the accuracy of the instrument. But to do this requires time, and a shop method is not always advisable.

Where the drive is from the front wheel, the driving wheel should be jacked up. When spinning, the various parts can be examined under working conditions, and a fairly accurate test of the speedometer operation can be made.

The method of performing this operation is as follows: A chalk mark is placed on the rim of the wheel, and the wheel turned as fast as possible. At a signal, one person reads the speedometer, and another counts the revolutions for one minute as timed by a stop watch, or second hand of a watch. The number of revolutions of the wheel, and the speedometer reading at the start and finish are noted. By adding the two speedometer readings, and dividing them by two, the average speed as recorded by the speedometer is determined.

HOW TO OBTAIN THE SPEED

The actual speed may be obtained from the chart in Fig. 1. Supposing the revolutions in the minute to have been 94, a horizontal line is followed until it meets the slanting line representing the diameter at the front wheel. Dropping down vertically, the speed is seen to be 11.6 miles per hour—which should correspond to the speedometer readings. As stated, if carefully made, this test is quite accurate, and requires little time.

A method used in Stewart speedometer service stations for testing speedometer heads is most accurate but requires special equipment. This is shown in Fig. 2,

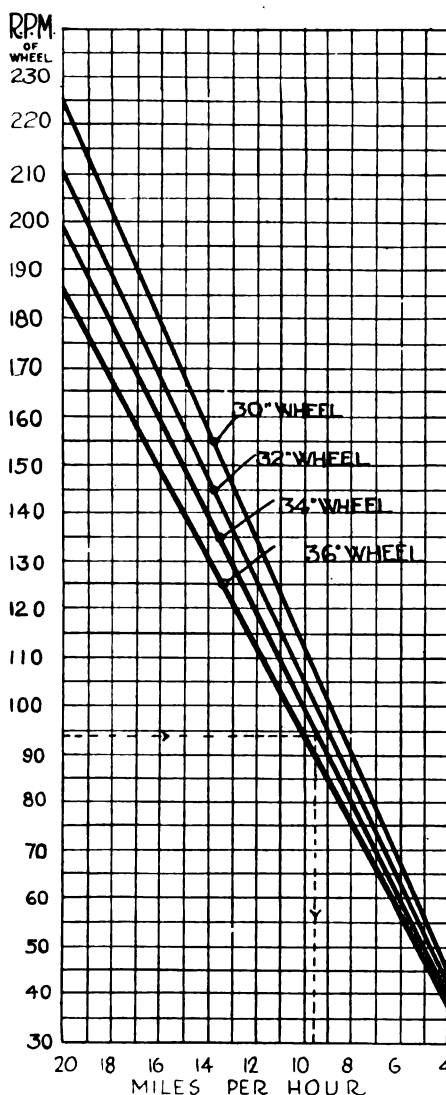


Fig. 1—This chart shows the m.p.h. for any number of r.p.m. of the wheels. It may be used in testing speedometers

and comprises a speedometer known to be accurate, driven from the same shaft as the one being tested. The shaft itself is driven from a friction wheel operated by an electric motor, and the speed may be varied throughout the speedometer range.

SPEEDOMETER TROUBLES

When the speedometer does not operate satisfactorily about the last place to look for the trouble is in the speedometer head. The order of tracing through the drive system, when of the front wheel type, is shown in Fig. 3, and the same order applies in general to any type of drive.

The indications of trouble are dial or pointer vibration, or failure of the instrument to register. Starting with the road wheel, examine the parts in the following manner:

ROAD WHEEL EXAMINATION

With the front wheel jacked up, and spinning, the road wheel and the pinion wheel should operate smoothly, and without appreciable noise. The gear and the pinion if meshed too tight or too loose will cause the needle to vibrate. Any looseness of the road wheel or steering knuckle will likewise cause vibration. On Stewart speedometers the space between the road gear and pinion gear should be 1/16 in., and the same applies in general to all others.

PINION GEAR EXAMINATION

The pinion gear on the installation may not be of the same pitch as that of the road gear. This will be indicated by failure of the two driving gears to mesh properly. Both the driving gear and the pinion gear usually bear the pitch number of the teeth and these should correspond. Another point of failure in the pinion gear is that the cotter pin retaining it to the swivel gear shaft may fail to catch, so that the gear rotates without

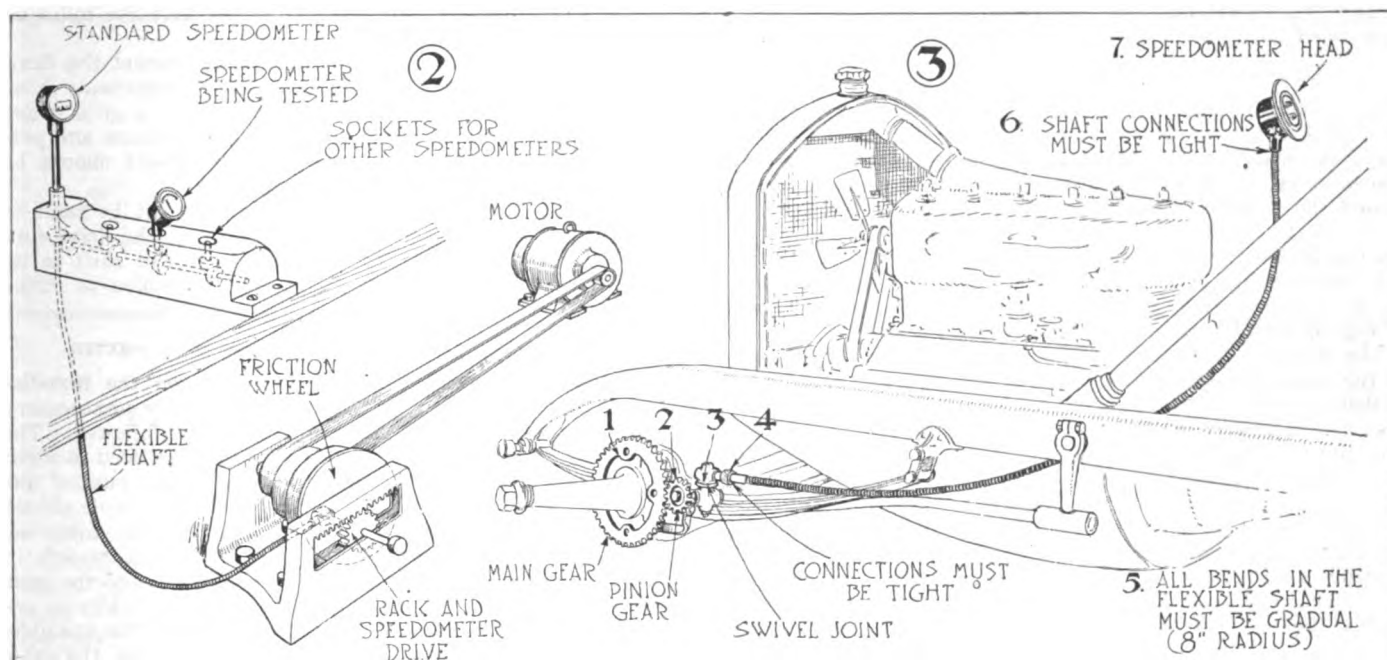


Fig. 2—This is the way speedometers are tested in the larger service stations. It shows accurately whether the head is right or wrong

Fig. 3—The points to be examined in inspecting a speedometer. The head is the last thing to be examined as it is rarely at fault

driving the shaft. A new gear is then necessary.

SWIVEL JOINT GEARS

A loose clamp or locking of the parts due to insufficient lubrication will cause the pinion gears to become stripped, and prevent the instrument recording. In this case new swivel joints should be provided, and the one provided should be of the correct ratio, and a duplicate of the one removed. This should be lubricated every 500 miles.

THE FLEXIBLE SHAFT

A most common cause of intermittent or vibratory speedometer operation is looseness at the point of attachment of the flexible shaft with the swivel joint, or with the speedometer head. These should be screwed up tightly so that the drive is continuous, and not intermittent. In the shaft itself several points may cause difficulty. The shaft may be broken, and if broken, effort should be made to determine the cause, as breakage from wear rarely occurs.

This is ordinarily by a too sharp angle in the flexible shaft, lack of lubricant, or by a binding of the shaft between some of the working parts. It should extend with a smooth curve from the swivel joint to the speedometer head, and be free from binding contact with any part, regardless of the angle of the wheels. And of course the shaft should not be so long that it drags on the ground, or makes any unnecessary curves. At all points of passage through metal parts the shaft should be protected to prevent wear.

From time to time the flexible shaft should be removed, cleaned and lubricated. On some installations oil is used, but the common method, after cleaning, is to pack the driving shaft with graphite

grease. This possesses about the right consistency, as a heavy grease would cause friction in the case, and a light grease or oil would work through the case and leave the shaft dry. New lubricant should be applied at least every 6 months.

THE SPEEDOMETER HEAD

Speedometer head repair is too complicated for the average repair shop, and should not be attempted. When it is impossible to locate the trouble elsewhere, it should be returned to the maker, or to a speedometer service station. But in most cases the head is not at fault, and the trouble will be located as described

above. Though each of the difficulties mentioned are transferred to the head, and indicate trouble in the head, the head should be the part that is suspected last.

STEWART SPEEDOMETERS

In all Stewart speedometers with front-wheel drive the road wheel gear should have twice the number of teeth that there are inches in the diameter of the wheel. For example, if a 34-in. wheel is used the road wheel gear should have 68 teeth. If an oversized tire replaces the 34-in. tire—one 35 in.—the road wheel gear should be changed to one having 70 teeth.

With an oversized tire unless the road wheel is changed the speedometer will register too low.

Invariably the pinion gear should have 16 teeth when installed on the front wheel. It should, however, have the same pitch as the road wheel, otherwise it will be quickly worn out and will become noisy. In installing a road wheel great care must be taken to secure it concentrically with the wheel, otherwise it will alternately bind on the pinion gear. In doing this, calipers should be used to gage the teeth of the wheel accurately with the center, and in some instances spacers must be used to hold the gear away from the wheel.

The main point to observe in all speedometer installation is to be certain that the parts used are proper for the car in question.

When ordering speedometers or speedometer parts the make, model, number of the car, size of wheels, etc., should be clearly specified. Otherwise brackets, clamps, etc., will not be right. Points indicated in the testing and care of the speedometer should be observed in the installation, and generally speaking the

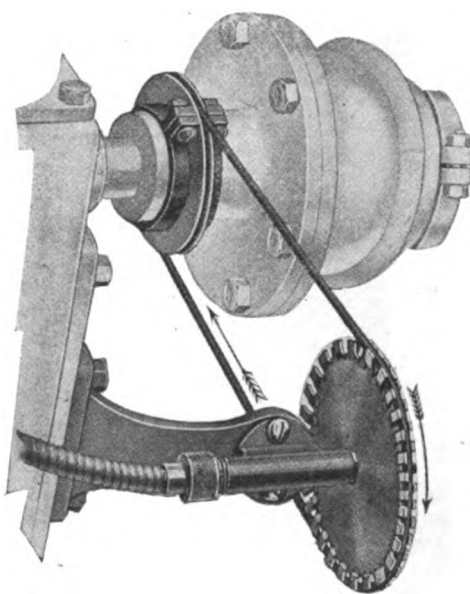


Fig. 4—This is a wire belt-drive installation used on Van Sicklen speedometers

flexible shaft should not be bent to form a curve of less than 8 in. in diameter.

VAN SICKLEN SPEEDOMETERS

Van Sicklen speedometers are made with four types of drive. The first is the front-wheel drive; the second, the transmission drive from a worm gear behind the gearbox; the third is from a flange or up on the universal joint at the rear of the gearbox, which carries a gear driving pinion held by a bracket to the gearbox case, and the fourth, shown in Fig. 4, is of the wire belt driven type.

The steps to follow if there is trouble in the speed registration or mileage recorded is to drive the car over a measured course two or three times after setting the trip odometer to zero. If it is found that the mileage recorded does not agree with the season it is apparent that the owner has changed the size of his tires or gear ratio, or else the wrong gearing for that car has been installed. It is necessary that a flexible shaft be driven the required number of revolutions.

The majority of Van Sicklen speedometers are driven at a speed of 1500 revolutions per mile, that is, the flexible

shaft has to turn that many revolutions per mile to register the mileage and speed accurately. On speedometers fitted with the 75-mile speed drive instead of the 60, the shaft is driven 1200 revolutions per mile. On still others the shaft is driven 2550 revolutions per mile. It is necessary that the elbows used should have the correct ratio.

STANDARD SPEEDOMETERS

In general the method of installation and maintenance of the Standard speedometer is covered above. When installing an F-500 speedometer on a Ford car the speedometer should be set so that when the hand is pointing at five miles it is horizontal with the top of the board. On 1917 Fords there is no hole through the engine pan for the speedometer shaft and the shaft is brought up to the head back of the engine pan at the right.

As the edge of this pan extends behind the crankcase it will cut the flexible shaft in two in a short time if it is not turned up. Therefore, the edge of this pan should be bent upward with a blunt instrument. A slight vibration of the registering needle immediately after installation is not serious. In most cases

it will cease after the first five miles on the road.

It is advisable to disconnect the flexible casing from the speedometer head after two months and run a good grade of engine oil into it to lubricate and prevent rust. The drive itself should be oiled every week.

Particular attention must be paid to keeping the cap-screws on the drive support tight; otherwise it will shift in its position, permitting the pinion to strike the bolts in the hub flange.

CORBIN-BROWN SPEEDOMETER

Detailed instructions on the installation of this speedometer are unnecessary if the above directions be followed. The slot of the cable should be fitted at right angles to the corresponding part of the speedometer head and the ferrule should be fastened tightly in place. Likewise, clearance of 1/16 in. should be left in meshing the teeth together and the gear bracket should be fastened tightly in position. Only two parts of the complete instrument require lubrication, the cable and the swivel gear. These should be thoroughly packed with grease every 6 months.

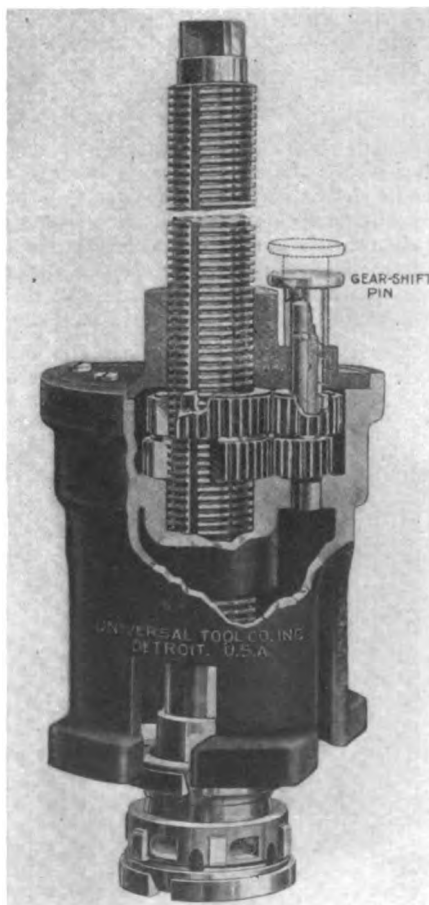
Tool for Reboring All Cylinders

THE Universal Tool Co., Inc., 916 Beaubien St., Detroit, manufacturer of the Universal Cylinder Reboring Tool, is now manufacturing an improved, similar tool. It permits reboring cylinders having connecting rod clearance at the bottom, without chattering or scraping that was possible with the former tool, and enables cylinders having deep scores or an oil hole through the side to be rebored without difficulty.

The improved tool operates upon exactly the same principle as the former one, a cutting head being rotated by a hand-operated screw spindle held in a metal support. There are six hardened steel cutters instead of four as before. Hence when one cutter is passing an opening and is not removing material, five other cutters are in contact with the cylinder walls and are removing material. Thus there is no opportunity for the head to change its relative position in the cylinder and bore a hole otherwise than dead true.

All V-thread bearings have been discarded as a means of holding the various parts in alignment. The threads on the main or operating screw are now square with six threads to the inch pitch. This gives the operating screw 4 1/2 in. of bearing surface so there is no possibility for it to spring out of alignment.

The feed is by four gears, one driven by the spindle and operating two smaller gears that in turn rotate a nut gear on the spindle in the direction in which the spindle is being rotated, but somewhat slower. By this a feed of .034 in. per revolution is possible. The two smaller gears are provided with a shifting pin so



The Universal tool may be used to re-bore cylinders from 2 1/2 to 5 1/2 in. in diameter on any engine. Approximately 2 hours are required to re-bore six cylinders

that in bringing the cutter back to the original position, the full six pitch is used.

A front wedge ring is used to guide the cutter concentrically in the cylinder and another wedge ring is supplied that follows the head at the top and offers additional support.

Both in the tool adjustment center and in the point of attachment of the boring head to the spindle, threads have been discarded as a means of keeping the parts in alignment. The mating parts are hardened steel and ground to fit into bushings so that alignment is independent of the threads which secure the parts and permit adjustment as formerly.

The Universal tool may be used to re-bore cylinders from 2 1/2 to 5 1/2 in. in diameter on any engine. Approximately 2 hours are required to re-bore six cylinders, or a Ford may be rebored in about 1 1/2 hours.

All parts of the device are made according to gage measurements and are interchangeable. The cutting tools may be re-ground in a shop provided with the necessary equipment, but the best plan is to exchange them for a new set of tools at the factory. This can be done for a cost of approximately \$2 and the re-sharpened tools will re-bore from 50 to 75 cylinders.

The standard charge throughout the country is about \$1 per inch of cylinder diameter for the reboring alone, excepting on Fords. All factories with few exceptions carry standard over-sized pistons, and the tool may be readily set to re-bore to these standards. The price of the tool is \$150.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Unpaid Notes

Editor Motor World: Please give your opinion on the following agreement:

Bloomsburg, Pa., Oct. 12, '15.

C. A. W., Dr. to C. S.

Gheen for Studebaker truck No. 466,489 and supplies \$907.00
Cash 100.00

\$807.00 \$807.00

Balance to be settled for at time of sale by series of notes. Title of car to remain with said C. S. Gheen until settled for.

Signed, C. S. Green—C. A. W.

March 18th, Cr. checks

\$200.00 and \$100.00... \$300.00

April 21st, Cr. check... 150.00

July 14th, Cr. check.... 74.85

July 14th, Dr. by bill for

lights and sundries to

date \$17.85

\$524.85 \$824.85

524.85

Balance due \$300.00

The notes were to be given when he sold horses and wagons at public sale, but the sale did not turn out well and the notes were not given, but I accepted payments as he could make them.

During the summer of 1917 Mr. W. went into bankruptcy. The business has been run since by a trustee.

I notified them at once of my claim on truck and not to sell same.

Can I hold or retake the truck after refusal to settle for same?—C. S. Gheen, Bloomsburg, Pa.

The best thing you can do in a case like this is to put your claim in the hands of a local attorney at once. If you do this he can take the matter up with the trustee on your behalf and see if the latter is willing to surrender the truck.

Who Pays?

Editor Motor World: Our business includes a motor bus line and taxi service, and since reading several articles on "The Law" by your Mr. Kaiser, it has occurred to us to think about what the outcome would be should an accident occur to one of our cars and some of our passengers seriously hurt.—Joseph P. Payne, Quogue, N. Y.

Answer—The outcome of injuries sustained by a passenger on a motor bus line would naturally be a lawsuit against the persons who owned the line. The outcome of the lawsuit, however, would not be so easy to determine, as it would very naturally depend on whether the driver of the bus was negligent or whether the negligence of the driver of some other vehicle caused the accident.

It is very important if you are running a bus line or a taxi service that you be sure that your drivers are both competent and careful, because, if accidents occur, the courts will say that the driver's negligence is your negligence and you will have to stand the consequences by paying for injuries which may be sustained through incompetence and unskilfulness or carelessness.

Some Mix-Up!

Editor Motor World: A friend is operating a garage and handling cars. One Sunday one of the boys asked for a car to take a trip with his brother-in-law and they drove the car about 25 miles. When they reached the stopping place the brother-in-law and his wife went to visit friends and the other chap drove the car out into the country and did not return until late in the evening. On his return he and his brother-in-law quarreled and he told his brother-in-law to take the car and get back the best way he could. Finally the former started the car on the homeward journey and then quit. He hasn't anything to settle with. The brother-in-law claims that he will not settle, although he has plenty of means to pay for the car. Please advise what can be done in the matter.—E. H. Robinson, Mason City, Iowa.

Answer—You do not state in your letter just what the garageman is asking the borrower of the car and his brother-in-law to settle for. Was there an accident? Was the garageman's car injured?

If the garageman's car was injured while in the possession of the borrower, the borrower would be responsible for lack of ordinary care to preserve the property on his part. Of course if the brother-in-law did not borrow the car and merely went as a guest of the borrower, he very naturally would not be responsible for damages to the car unless they were caused by him in some way.

The Unreliable Driver

Editor Motor World: Recently had an experience which has caused me to investigate the reliability of a driver. Started for our home town one morning about four weeks ago, and as I got into the city (Streator, Ill.) was driving east on the right side of the street. Came to one of the crossings there were two cars coming from north, one on the right side of the street and the other, a truck, on the left. I drove on until I got opposite the truck and I thought he would hit me so turned up on curbing, struck a tree, damaging the right fender, light, spring and radiator.

The bill for repairs is \$56. I went to the merchant who owns the truck and told him how his driver got me confused being on the wrong side of the street and further did not give me any signal to go ahead, although he stopped when he saw me drive up on curbing. This merchant carries an insurance for liability accidents. He said if his company would do anything for me I should get it to pay damages. He got word from the company they would not be responsible because the driver did not hit me. After his company refused to pay anything I asked him to meet me half way, but he refused me and said if I had put my brakes on in time I would not have damaged the car. I have not asked the advice of a lawyer, but our garageman said he should meet half of the expenses.

What do you think and advise me to do? I do not want to get in any deeper with expense and feel I have a lot to be thankful for, as no one was injured.—Mrs. William A. Coe, Ancona, Ill.

Answer—I am not at all surprised that the insurance company refuses to pay your claim. It would be quite unusual for an insurance company to pay a claim of this kind when the insured car caused no direct damage. Of course it is impossible to tell you whether or not you would succeed in recovering a judgment if you instituted suit. All I know of the accident is what is contained in your letter. I suggest that if you feel like proceeding with this matter you put your claim in the hands of some local attorney upon an agreement that he handle it on a contingent basis; that is to say, if you succeed in recovering judgment you will give him part of it—say one-third or one-half, and if you fail to recover judgment he is not to charge you any fee.

Repairshop Shortcuts

From The Motor World Roadman

No. 1502—FENDER STORAGE RACK

Due to the shape and high finish, it is not an easy matter to store fenders efficiently and without marring. A rack permitting this to be done comprises a row of wooden uprights to which are fastened a series of inclined cross arms. These arms are placed very closely together so that the neighboring fenders are barely separated. In this position the desired fender may be quickly obtained without disturbing or marring the rest. Ordinarily the entire rack should be covered with cheesecloth to prevent the accumulation of dust on the fenders.—Guy O. Simons, Simons Sales Co., Overland distributors, Detroit.

No. 1503—IMPROVED WHEEL TRAM

Wheel trams appear in a countless variety of forms, but one possessing several advantages, namely, lightness and rigidity together with simplicity, is shown. It is metal throughout, the cross base being tubular conduit steel, and the uprights and braces flat steel strips all welded together. Half-inch bolts with locknuts are used to secure the wheel measurements at the front and at the rear.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1504—SPECIAL FRAME JACKS

A common method of supporting the car while removing the front wheels, axles or springs, etc., is to use an overhead hoist. Where this is not possible special frame jacks may be used to advantage. These are common auxiliary jacks somewhat higher than the standard and are placed just behind the rear spring shackle in the manner shown.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1505—EMERY WHEEL GUARD

When grinding on an emery wheel the workman should be provided with goggles, but due to their inconvenience and because of the haze in which the work is usually done this is not always done. By the provision of a metal guard completely housing all except the working face of the wheel, the workman is guarded at all times and the use of goggles rendered unnecessary. Such a guard comprises a hood built up of fender sheet metal soldered together and fastened to the grinding wheel bench.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1506—CLUTCH WASHING FILLER

On Paige cars the clutch is of the enclosed type and it is not an easy matter to wash it off or fill it with new oil. A special filler for this purpose facilitates the work. It is constructed by soldering a 2-ft. length of $\frac{3}{8}$ in. copper tubing to the end of a small funnel and then bending the tubing so that it may be quickly inserted into the opening in the clutch. As the funnel then projects out where it is readily accessible the kerosene or oil may be readily inserted.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1507—WINTER TOP STORAGE

Winter tops may be stored by any garage at the rate of \$10 per season, and in addition to keeping the top in better condition for the owner, returns the garage a nice income for a small investment. Racks are provided extending from the floor to the ceiling divided into compartments, each holding a top. The tops are so supported that they cannot be harmed and are covered with a cloth to prevent the accumulation of dust. Another advantage of this is that the top is stored in a place where the regular workmen are available for removal or replacement.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1508—CUSTOMERS' STORAGE LOCKERS

Occasionally the repairshop is accused of theft of various articles left in the customers' cars during repair work. This may be avoided by the provision of a set of lockers in which the customer places all his tools, robes, etc., before the car

\$1 a Shortcut

BEGINNING with the New Year, Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. The field is open to everyone, and shop men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

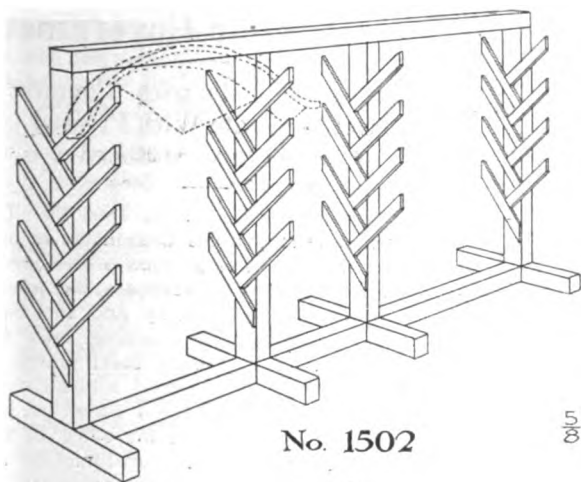
enters the repairshop. As he alone possesses the key to the locker, there can be no questions as to the safety of the goods. This is a step that has eliminated the source of much dissatisfaction between the owner and the service station.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1509—FOREMAN RECORD SLATES

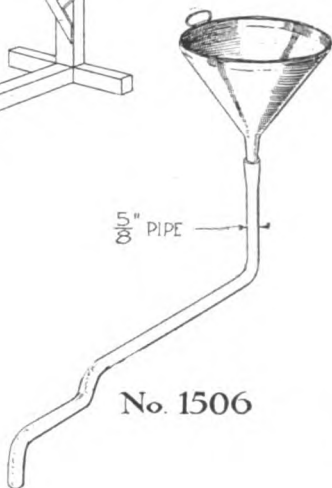
Part of every foreman's work is to answer questions as to when the cars in his charge will be finished. It is therefore necessary that he be able to tell at a glance where each car is. As a record of this nature changes constantly from day to day a slate record is advisable. On this slate a plan of the repairshop is drawn and as any car enters a repair stall its number and the owner's name are recorded on the slate. As long as the car is in the shop the record is maintained, but as it is removed for a road test the time it left the shop is recorded on another slate, and if it is O.K.'d and sent to the delivery floor it is checked off. By these two slates the foreman can answer any 'phone inquiry in an instant.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1510—CAR CARD HOLDER

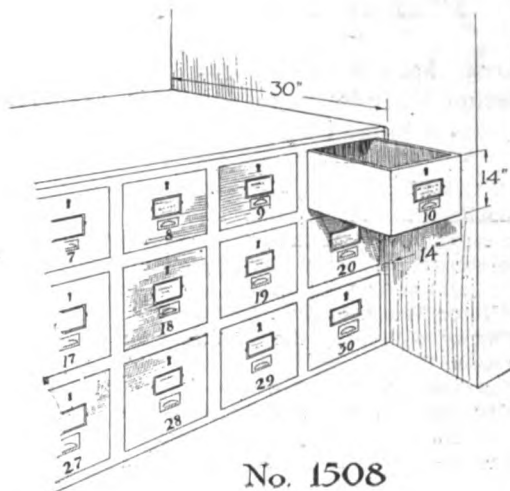
By the provision of a simple iron strip at the side of the doorman's desk a holder is provided for all work card cases that are not being used. Until this simple method of caring for the work card cases was employed, the cases were continually being lost and were scattered around the shop. By the above system they are always at the point desired when desired.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.



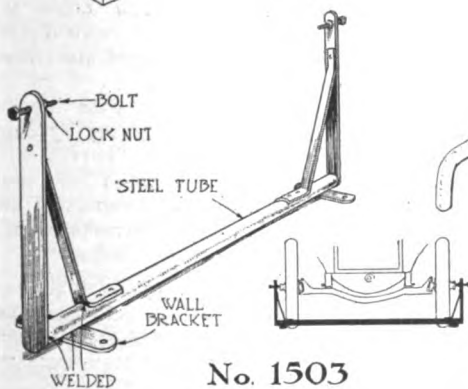
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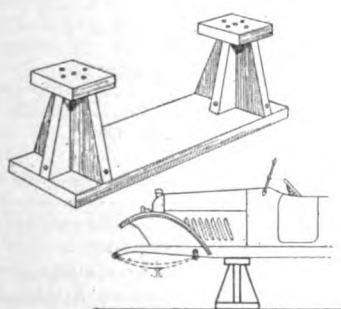
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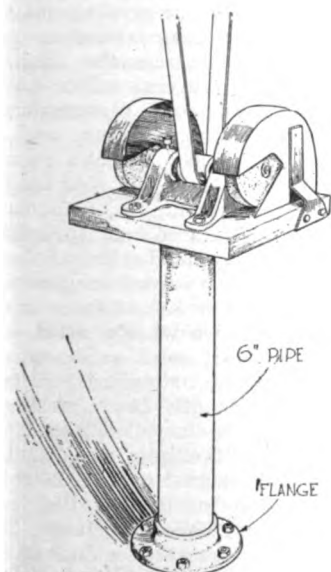
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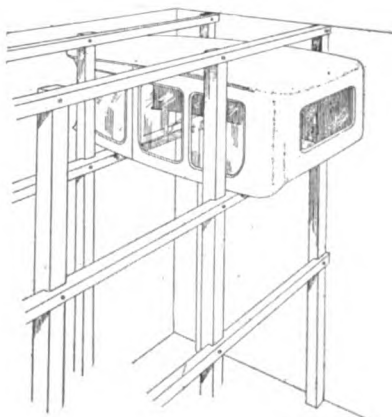
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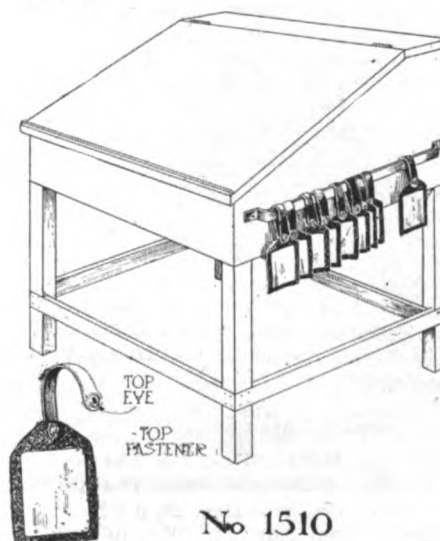
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No. 1505



No. 1507



No. 1510

Dealers: Try This Plan in Your Town

Montreal Association Adopts Suggestion Made by Motor World on Essay Contest

MONTREAL, Dec. 28—The Montreal Automobile Trade Association is promoting an essay contest in the public schools on the subject of "Why the Motor Car Is an Essential," as suggested on page 15 of Motor World of Dec. 5. Manager T. C. Kirby will carry the plan into all the schools.

The contest will be limited to children under 15 years of age and there will be a definite closing date for the submission of the essays. Prizes will be \$10, \$6 and \$3.

The contest will, it is planned, school the children in research work. It will also, it is anticipated, cause them to ask many questions of their parents and bring to the attention of the grown-ups the fact that the motor car is one of the Dominion's most essential articles.

London Wholesaler Opens Here

NEW YORK, Dec. 26—S. Smith & Sons Motor Accessories, Ltd., London, has opened a buying office in New York at 154 Nassau Street, with J. H. Rose in charge. Smith & Sons, which was established in 1841, and has branches in South Africa, Australia, New Zealand, the Dutch East Indies and Siam, has been finding it difficult to secure goods in England because of the war. Its volume in 1917 was nearly \$4,000,000. The office will be permanently retained here after the war.

Cleveland Trade Draws Together

CLEVELAND, O., Dec. 26—Within the past year eighteen passenger car and truck salesrooms have located within a radius of 1000 ft. of the new automobile section at the intersection of Euclid Avenue and East Forty-sixth Street. The latest of these is the Turner Truck Co., which has taken a 5-year lease on the entire first floor of the A. & B. Realty Co.'s new fireproof service building, for a total consideration of \$30,000. Possession will be taken Jan. 1. Paul R. Turner is president and Frank Stanton secretary.

Pan-American Takes Lumb

CHICAGO, Dec. 26—The Lumb Motor Truck & Tractor Co., Aurora, Ill., has been taken over by the Pan-American Motors Corp., Chicago. The truck manufactured by the company will be styled Pan-American.

Duplex Earns \$92,000

LANSING, MICH., Dec. 26—The annual meeting of the stockholders of the Duplex Truck Co., held Dec. 18, disclosed a net profit from Nov. 23, 1916, to Oct. 31, 1917, of \$92,002.10. This was despite the fact that manufacturing was handi-

capped by the removal of the company from Charlotte, Mich., to this city. The total assets of the company are \$1,113,854 and the current liabilities amounted to \$122,822. The value of the material and supplies on hand was \$287,893, and in finished trucks \$86,500.

Pence Enters Banking Field

MINNEAPOLIS, Dec. 26—H. E. Pence, of the Pence Automobile Co. and president of the Minneapolis Automobile Trade Association, is leading incorporator of a bank to be opened on automobile row March 1. The Lincoln National Bank, the only one of that name authorized, is to have \$250,000 capital and \$50,000 surplus.

Oakland Gets 50 Freight Cars

PONTIAC, MICH., Dec. 26—The Oakland Motor Car Co. has obtained 50 new Northern Pacific freight cars for motor vehicle transportation. These are being loaded for immediate passage to Seattle and Portland. Each freight car will carry 5 passenger cars; there will be a delivery of 250.

Packard Starts Trucking Exchange

DETROIT, Dec. 26—The Packard Motor Car Co. has established a Detroit Trucking Exchange, to serve as a truck clearing house. Owners of trucks are listed and when a company requires an additional truck, the trucking exchange is advised and obtains an idle truck. This service, which is performed without charge, will relieve terminal and warehouse congestion, help the freight car situation and keep material moving.

Canada Wants Winter Tops

MONTREAL, Dec. 26—Detachable tops for motor cars are meeting with an unexpected and unprecedented demand in Montreal territory, according to local dealers. "This year for the first time we are receiving and shipping tops in carload lots," says W. Jennings, president of the Montreal Automobile Trade Association. "Country dealers are showing an unexpected interest in the tops."

With the farmers all over the country just beginning to reap the financial benefit of the 1917 grain crops, there is a strong possibility that the total number of automobiles in Canada will pass the 200,000 mark before the end of 1917.

Portland Starts Campaign

PORTLAND, ME., Dec. 29—The Portland Automobile Dealers' Association has instituted a campaign of activity which began Dec. 19 with a "Get Busy Dinner" in the Falmouth Hotel. Chester I. Campbell, secretary of the Boston Automobile Dealers' Association, outlined the work that the active Boston organization has done, and pointed out ways in which the Portland dealers may work.

Plans to Facilitate Bids for Government

Automobile Industries Committee to Co-operate With Pressed Steel Service Board

WASHINGTON, D. C., Dec. 26—The Automobile Industries Committee is now under way and has started a number of plans designed to co-ordinate the manufacturers of the industry and the Government departments seeking bids for war work. The pressed steel plants of the country have combined into an association called the Pressed Steel Service Committee and opened an office in the same building with the Automobile Industries Committee. The office is in charge of H. L. Green, who formerly was secretary of a pressed steel makers association in Cleveland.

This office co-operates with the Automobile Industries Committee by supplying a list of presses, a survey of the various plants and lists of idle presses so that the automobile committee knows where to place the contracts with the least disturbance to industry. The makers in the association include:

Acklin Stamping Co.	..... Toledo
American Tube & Stamping Co.	..... Bridgeport
Bossert Corp.	..... Utica
Boston Pressed Metal Co.	..... Worcester
Crosby Co.	..... Buffalo
Detroit Pressed Steel Co.	..... Detroit
Gier Pressed Steel Co.	..... Lansing
Geuder Paeschke & Frey Co.	..... Milwaukee
Globe Machine and Stamping Co.	..... Cleveland
Hale & Kilburn Co.	..... Philadelphia
Hydraulic Pressed Steel Co.	..... Cleveland
Ireland & Matthews Mfg. Co.	..... Detroit
Kales Stamping Co.	..... Detroit
Frank Mossberg Co.	..... Attleboro
Savage Arms Corp.	..... Sharon
Sharon Steel Hoop Co.	..... Sharon
A. O. Smith Co.	..... Milwaukee

It is planned to form similar associations among other makers in the forge, brass foundries and brass finisher plants and others.

The automobile committee has inaugurated a plan also for sending out bulletins to manufacturers informing them of Government requirements. Bulletin number 1 calls for several million adaptors, bulletin number 2 for machining capacity for 75 mm., 155 mm. and especially 4.7 in. shells. Bulletin number 3, the last issued, calls for 4500 trailers for over-seas shipment, to be furnished during February, March and April, 1918. These trailers are for the Signal Corps, and contracts are awarded in quantities of 1500, 1000, 750 or 500. General specifications include two wheels, wood, 35 x 5, pneumatic tires, solid axles, tapered roller bearings, 5-in. standard structural channel frame, length 21 ft., width 49 in.; platform of 3/4-in. yellow pine, 21 ft. x 6 ft. 9 in.; half elliptic springs, 3 in. x 54 in.; solid channel tongue, 2000 lbs. capacity; no steering device. Bids must be in by 10 a.m., Dec. 31. Master blueprints will be furnished manufacturers receiving contracts.

Further bulletins will be issued as required. The committee prints drawings

of block dimensions where possible, but in the case of blueprints does not publish these but sells those it can at cost to makers desirous of securing them. Many blueprints are not even displayed except to reliable manufacturers considered trustworthy by the committee and the Government in order to maintain secrecy about important military affairs.

Milwaukee Plans Big Show

MILWAUKEE, Dec. 27—With a full understanding of the situation created by the state of war, but as full an understanding of the necessity of keeping business as usual, or more active, the Milwaukee Automobile Dealers, Inc., has mapped out a progressive and intensive campaign for the new year, which will be inaugurated with the most comprehensive show that has ever been staged in Milwaukee.

The show will last 10 days, beginning Jan. 16 and closing Jan. 25. It will be held in the Auditorium. The first 7 days will be devoted exclusively to passenger vehicles and the remaining three days to an exclusive commercial car show. The exposition will be Milwaukee's tenth annual motor show. All previous shows have been combinations of passenger and commercial car displays and none has run over a period of more than a week. Extending the first war-time show to ten full days is an enterprising but daring innovation, but that is to be expected from the progressive spirits that guide the M. A. D., which stands in the front rank of local dealers' associations of the United States.

Ogg Heads Springfield

SPRINGFIELD, ILL., Dec. 27—Basil Ogg was elected president of the Springfield Motor Car Dealers' Association at a meeting held this week. F. W. Gottlieb, representative of the Chicago Auto Trade Association, was present and made an address upon the subject of used cars and trade organizations. The Springfield dealers are desirous of establishing uniform prices for used cars. Steps are being taken to secure co-operation among the dealers in this direction.

Charles J. Klein Dead

Charles J. Klein, designing engineer of the Cutler-Hammer Mfg. Co., Milwaukee, and one of the best known electrical engineers in the United States, died suddenly at his home in Milwaukee on December 17, at the age of 55 years. Mr. Klein came to the main office and works of the Cutler-Hammer in 1908 from its New York plant. He was responsible for many of the notable inventions and designs of electric controlling devices manufactured by the company and contributed much to the perfection of the C-H magnetic gearshift for motor vehicles. Mr. Klein was a close friend and disciple of Thomas A. Edison and Christian P. Steinmetz.

Truck Manufacturers Adopt Drive-Away Plan

J. C. Wilson Co. and Dodge Brothers Find It Saves Time and Expense

DETROIT, Dec. 26—Truck manufacturers are following in line with the passenger car manufacturers and using the drive-away method of getting the trucks into the hands of dealers. The J. C. Wilson Co. is now driving away trucks as far as Boston, Philadelphia, Baltimore and other points. It is stated that in spite of the road conditions the saving in time and freight is considerable, even though freight car equipment were available.

Careful records were kept by the Baltimore dealer on his last drive. The trucks were the 2-ton type and each carried a certain amount of parts for the Baltimore service department. The distance of 543 miles was covered in 4 days, the trucks passing through Toledo, Cleveland, Youngstown, Pittsburgh, Uniontown, Cumberland and Baltimore.

The average number of gallons of gasoline per truck consumed during the trip was 62, and each used 1 gal. of oil. The total expense per truck, including not only the immediate expenses but also the insurance, mechanical wear, proportional to the yearly overhead, etc., was \$62.91. The cost per day per truck was \$15.56, giving a mileage cost of .116 cent, or a ton-mileage of .058 cent.

Dodge Brothers are likewise delivering the new commercial car overland, and this will be followed the entire winter regardless of weather conditions. Already cars have been delivered to Lawrence, Kan.; Atlanta, Ga.; Hannibal, Mo.; Paris, Tenn.; Waterloo, Iowa; Cincinnati, Ohio; Davenport, Iowa; Johnstown, Pa.; Terre Haute, Ind., and Chicago, Ill.

Complete Two Nelson Trucks

SAGINAW, MICH., Dec. 27—The Nelson Bros. Co. has completed its first 2-ton truck and fifty more are planned within the next two months. These are to be styled the "Jumbo" trucks, and an addition will soon be made to the factory so that nearly all the units can be manufactured. At present the truck is being assembled. The price has not yet been determined.

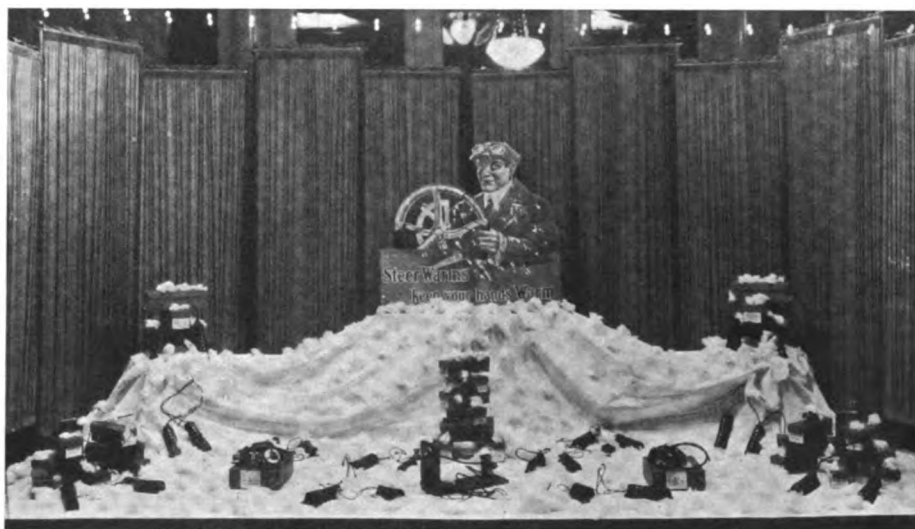
Colorado Pushing Organization

DENVER, Dec. 28—The Rocky Mountain Automobile Trades Association has started an active campaign for membership, in charge of Business Manager Harry G. Moock. Letters are being sent out to dealers and garagemen and local associations are being formed and old ones revived. Work thus far has been done with the Colorado Springs Auto Trades Association, Colorado Springs; Pueblo Auto Trades Association, Pueblo; Arkansas Valley Garage Men's Association, La Junta; Colorado-Mexico Auto Trades Association, Trinidad; Fort Collins Auto Trades Association, Fort Collins; Fort Morgan Auto Trades Association, Fort Morgan; Longmont Auto Trades Association, Longmont; Sterling Auto Trades Association, Sterling.

Membership is Class A and Class B, Class A costing \$10 more than Class B, being open only to automobile dealers and including membership in the National Automobile Dealers' Association.

Case Holds Tractor School

ST. LOUIS, Dec. 27—One hundred and fifty farmers gathered here last week to learn more about running tractors. About 10 per cent were prospective tractor owners, the others owning machines. The school was held in the assembly room of the J. I. Case T. M. Co. No admission fee was charged and no questions asked as to what tractor the pupil used or if he used any, until the end of the session. Two sessions were held daily.



THIS STEER-WARM DISPLAY was set up by the Interstate Electric Co., New Orleans, which is the maker of this device. As this issue of Motor World is being printed it seems as though there ought to be a pretty good demand for warming devices of various kinds

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

W. E. Yale is Michigan distributor for the Fruehauf Trailer Co. He was formerly with the Studebaker, and Overland.

A. G. Dulmage, for many years business manager of the Arizona Gazette of Phoenix, has severed his connection with the paper to become the assistant general manager of McArthur Brothers, one of the largest automobile concerns in the state.

C. J. Pomeroy, formerly in charge of the operating department of the Seattle branch of the B. F. Goodrich Co. has received the commission of Captain in the United States Army. He will be stationed at Camp Lewis.

Wetmore Hodges has been elected vice-president and general manager of the Haskellite Co., Grand Rapids.

George J. Dunham, formerly president of the Royal Tourist Co. and recently sales manager for J. H. MacAlman, Stearns-Knight dealer, Boston, has been appointed manager of the New England branch of the Standard Steel Car Co., Boston.

J. V. Schenck, formerly Eastern district sales manager for the Scripps-Booth, has been made sales manager of the Scripps-Booth Co. of New England, with headquarters at Boston.

S. S. Toback has been appointed general manager of the Redden Motor Truck Co., Detroit. He was formerly with the A. Elliott Rannay Co., New York, and a Hudson dealer.

Joseph Berg, former chief engineer of the Stewart-Warner Speedometer Corp., Chicago, has joined the Champion Ignition Co., Flint, Mich.

C. L. Allen has joined the Chevrolet Motor Co., having resigned as production manager of the Allen Motor Car Co. L. A. Sumner, former general factory manager, is now assistant general manager of the Allen Co.

Raphael Semmes, vice president of the Semmes Motor Co., Washington, has received a first lieutenant's commission in the Signal Corps. He will probably be attached to the non-flying division of the aviation division.

C. J. Elston, service manager of the Saxon Motor Car Co., Detroit, has resigned to become sales representative of the Asbestos & Rubber Works of America, New York.

Ferris B. Flick, purchasing agent of the Saxon Motor Car Co., has resigned to become purchasing agent for Chalmers material at the plant of the Maxwell Motor Co., Detroit.

Charles E. Stahl has been made assistant general manager of the Connecticut Telephone & Electric Co., Meriden. He will continue the direction of the sales department.

P. P. Hinkley has been transferred from the sales department of the Connecticut Telephone & Electric Co., Meriden, to the position of purchasing agent of the company.

A. W. Sayre has been appointed district manager of the Willard Storage Battery Co.'s factory branch at New York. He was formerly in charge of the Willard service station, Rochester, N. Y.

Gregory Flynn, for seven years sales manager of the Rajah Auto Supply Co., Bloomfield, N. J., has been appointed assistant to the president of the Edward A. Cassidy Co., New York.

34 New Accessory Exhibitors

NEW YORK, Dec. 24—Thirty-four accessory manufacturers have been added to the list of exhibitors for the National shows. This brings the total number to 252 as compared with 227 for the 1917 show. The new exhibitors are:

Chicago and New York

Arrow-Grip Mfg. Co.....Glen Falls, N. Y.
Black & Decker Mfg. Co.....Baltimore
Challoner Co.....Oshkosh, Wis.
Guarantee Liquid Measure Co.....Pittsburgh
Macbeth-Evans Glass Co.....Pittsburgh
Menominee Elec. Products, Inc.....New York
Pratt Mfg. Co.....Chicago
Sunderman Corp.....Newburgh
Water Gas Carburetor Co.....New York
Wire Wheel Corp. of America.....Buffalo

New York Only

Adams & Elting Co.....Chicago
Art Metal Works.....Newark, N. J.
Auto Pedal Pump Sales Corp.....New York
Edward G. Budd Mfg. Co.....Philadelphia
Carburetor Mantle Co.....New York
Coffield Tire Protector Co.....New York
Eisemann Magneto Co.....Brooklyn
Fryer-Auster Co.....New York
Kales Stamping Co.....Detroit
George W. LeCompte Co.....New York
Otis Elevator Co.....New York
Peters & Herron Dash Co.....Columbus
Philadelphia Storage Battery Co. Philadelphia
Rives Never-Slip Auto Pedal Co.....New York
Simmons Mfg. Co.....Cleveland
Sales Service Co.....New York
Titeflex Metal Hose Corp.....New York
Tri-ton Trailer Corp.....New York
Union Truck Mfg. Co.....New York

Chicago Only

Air Device Co.....Chicago
Gibraltar Jack Co.....New York
Globe Mfg. Co.....Battle Creek
McKinnon Dash Co.....Buffalo
Syracuse Universal Mfg. Co.....Syracuse

Ministry of Munitions to Purchase Supplies

WASHINGTON, Dec. 27—It is believed here that the President will create a Ministry of Munitions which will have complete power to purchase the necessary munitions. Members of the War Industries Board will be lieutenants, so to speak, to the Minister of Munitions. In all probability Daniel Willard, now chairman of the War Industries Board, will fill this new cabinet office. When the new division is organized the purchase of all motor trucks will come under its direction instead of the Signal Corps, the Engineers Corps, Medical Corps, Ordnance Department or the Quartermaster's

Department, as is now the rule. The activity of the different army departments will be confined to operations in the war zone, and the industrial end will be turned over to the Ministry of Munitions.

Kliesrath with Simms

EAST ORANGE, N. J., Dec. 29—Victor W. Kliesrath, for many years chief engineer of Bosch Magneto Co., has acquired an interest in the Simms Magneto Co., East Orange, and after Jan. 1 will devote his entire time to the business in the capacity of consulting engineer. It is probable that new types of magnetos not made now by the Simms Magneto Co. will be added to complete a line of ignition equipment to meet every requirement.

New Batavia Rubber Officers

BATAVIA, N. Y., Dec. 31—Thomas W. Dynan, credit manager, and Maxwell H. Bochow, assistant treasurer of the Metropolitan Trust Co., have been elected treasurer and general manager, respectively, of the Batavia Rubber Co. Dynan succeeds C. M. Darwin, and Bochow fills the vacancy caused by the retirement of George W. Hodges of Remich, Hodges & Co. The company will open executive offices in New York.

Motor Securities Quotations

	Bid	Asked
*Ajax Rubber Co.....	45	50
*J. I. Case T. M. Co., pfd.....	73	77
Chalmers Motor Co., com.....	2	4
Chalmers Motor Co., pfd.....	50	50
*Chandler Motor Co.....	66½	67½
Chevrolet Motor Co.....	93	95
*Fisher Body Corp., com.....	20	34
*Fisher Body Corp., pfd.....	70	87½
Fisk Rubber Co., com.....	45	45
Fisk Rubber Co., 1st pfd.....	98	103
Fisk Rubber Co., 2d pfd.....	60	70
Firestone Tire & Rubber Co., com.....	95	98
Firestone Tire & Rubber Co., pfd.....	96	98
*General Motors Co., com.....	97	98
*General Motors Co., pfd.....	77	78
*B. F. Goodrich Co., com.....	35	37
*B. F. Goodrich Co., pfd.....	94	99
Goodyear Tire & Rubber Co., com.....	135	140
Goodyear Tire & Rubber Co., pfd.....	92	94
Grant Motor Car Corp.....	1½	2
Hupp Motor Car Corp., com.....	1½	2½
Hupp Motor Car Corp., pfd.....	72	78
International Motor Co., com.....	12½	13½
International Motor Co., 1st pfd.....	23	25
International Motor Co., 2d pfd.....	15	26
*Kelly-Springfield Tire Co., com.....	40	41
*Kelly-Springfield Tire Co., 1st pfd.....	72	80
*Lee Rubber & Tire Corp.....	13½	14½
*Maxwell Motor Co., Inc., com.....	23½	24½
*Maxwell Motor Co., Inc., 1st pfd.....	54	55
*Maxwell Motor Co., Inc., 2nd pfd.....	20½	22
Miller Rubber Co., com.....	130	140
Miller Rubber Co., pfd.....	95	98
Packard Motor Car Co., com.....	95	103
Packard Motor Car Co., pfd.....	92	96
Paige-Detroit Motor Car Co.....	11	12½
Peerless Truck & Motor Corp.....	11	14
Portage Rubber Co., com.....	109	111
Regal Motor Car Co., pfd.....	20	20
*Reo Motors Car Co.....	14	16
*Saxon Motor Car Corp.....	6½	7½
Springfield Body Corp., com.....	..	..
Springfield Body Corp., pfd.....	..	..
Standard Motor Construction Co.....	7½	8½
Standard Parts Co.....	78	78
*Stewart-Warner Speed Corp.....	43	45
*Studebaker Corp., com.....	45	46
*Studebaker Corp., pfd.....	88	91
Swinehart Tire & Rubber Co.....	16	26
United Motors Corp.....	18½	19
*U. S. Rubber Co., com.....	51	52
*U. S. Rubber Co., pfd.....	93	94
*White Motor Co.....	35	37
*Willis-Overland Co., com.....	19	19½
*Willis-Overland Co., pfd.....	72	75
*At close Dec. 29, 1917. Listed N. Y. Stock Exchange.		
†Par value \$10.		

More Men You Will Meet

ACCESSORIES

Stewart-Warner Speedometer Corp.—Astor—
L. L. Banford; Manhattan—W. A. Gardener, D. F. Hyland, R. Karl, A. C. Marquardt; New York resident—F. M. White.

A. Schrader's Son, Inc.—Chatham, Room 110—Any representative present.

Sheldon Axle & Spring Co.—Astor—*F. L. Martin, *J. A. Young, A. M. Laycock, J. F. Armstrong.

JOBBER

Goodrich-Lenhardt Mfg. Co.—Astor—E. A. Goddard, John A. Colley.

Champion Plug Sees Silver Lining Only

Bigness of Future the Theme at Its Annual Sales Convention—Selling Instruction a Feature

TOLEDO, Dec. 27—Viewing optimistically the future for spark plugs and other motor essentials, the Champion Spark Plug Co. during its convention in Toledo on Dec. 17-22 started a campaign which, it is believed, will tend to create more confidence in trade circles.

Facts were submitted to those in attendance showing that the nation is not in the unprosperous state alarmists in various sections would have one believe.

Sixty members of the sales force together with a score of jobbing representatives from all sections of the United States and from Canada together with men of national prominence in advertising and motor circles were in attendance at this meeting.

Throughout, the members of the sales force were "sold" on optimism. No opportunity was overlooked to impress upon them that in spite of the war and other alleged discouraging conditions, the Champion company viewed the business outlook for the year 1918 with nothing but optimism. That the company anticipates a material increase in business was evident from statements made to the effect that extension plans have been made for increased production. The automatic machine capacity—machines that turn out the steel shells for spark plugs—will be practically doubled after Jan. 1.

The program for convention week included class meeting sessions, round table discussions, get-together meetings, indoor athletic meet, a trip to Detroit and various social functions.

The opening day, Monday, Dec. 17, was devoted to talks by officials of the company and an indoor athletic meet at the local Y. M. C. A. This meet was one of

the outstanding features of the convention. Sixty odd men, including R. A. Stranahan and F. D. Stranahan, president and treasurer respectively of the company, appeared in the various events.

Tuesday was advertising day. The entire time was taken up by a complete outline of the publicity campaign the company will wage during the coming year, and with talks by men interested in various lines of advertising. Harris L. Corey, advertising manager, outlined in detail the schedule which has been arranged. During the sessions Albert de Montluzin, general sales manager of the Poster Advertising Co., and H. J. Mahin, sales manager of the O. J. Gude Co., addressed the salesmen on talks pertinent to advertising. The annual banquet was held Tuesday night.

Wednesday was set aside as jobbers' day. Officials and representatives of many of the larger jobbing houses in various cities were honored guests at the day's sessions and at the annual banquet which followed. Plans for co-operation between the manufacturer and jobber were discussed in detail during the meetings. Among the principal speakers who addressed the convention were: Harry B. Harper, of the Willys-Overland Co.; T. C. Rice-Wray, of the Mutual Life Benefit Insurance Co., Detroit; M. C. Leckner, of the Research Bureau of the Saturday Evening Post, and A. P. Fernald, of the War Camp Recreation Bureau.

Salesmen and jobbing representatives invaded Detroit on Thursday. During the forenoon they visited the plant of the Studebaker Corp. and in the afternoon made a tour of inspection of the company's porcelain factory. In the evening they were entertained at a dinner at the Detroit Athletic Club and later at a theater.

With the exception of a few conferences within the organization the convention closed on Friday. The day was devoted entirely to business.

Each day during the convention the company published a newspaper known as "The Champion Spark, for Champion

Spark Pluggers," which is to become a semi-monthly publication, beginning Jan. 1. F. B. Caswell was in complete charge of the convention activities.

Torbensen Axle Co. Insures Employees

CLEVELAND, Dec. 27—The Torbensen Axle Co. gave each of its 500 employees a certificate of insurance as a Christmas gift. Those who have entered the service of the company since July 1, 1917, are insured for \$250, this amount to be raised to \$500 upon completion of 6 months' service. Those who have been with the company for more than a year are insured for \$600, with an increase of \$100 for each additional year of service until a maximum of \$1,500 has been provided. This insurance was in force from noon of Dec. 24, and does not interfere with the Workman's Compensation as provided by the Ohio State law.

Fiat Absorbs Three Companies

TURIN, ITALY, Dec. 23—The Fiat Co. has absorbed three companies. They are: Ferriere Piemontesi Steel & Iron Foundries, capitalized at 9,000,000 liras; Officiene gia Fili Diatto Railways and Trams Rolling Stock Works, capital 4,000,000 liras, and Industrie Metallurgiche Torino Steel & Iron Works, capital 4,000,000 liras.

Kissel Contract to Garford

WASHINGTON, D. C., Dec. 29—The Kissel Motor Car Co. has been released from its contract for 500 Class B heavy-duty War Trucks because of its need for all facilities to handle contracts for four-wheel drive trucks recently received. The contract for the 500 B trucks was transferred to the Garford Motor Truck Co., making the Garford contracts for B. trucks total 1000. It is rumored that two or three other concerns will be released from their contracts also.



THE CHAMPION SPARK PLUGGERS at their annual dinner did just what every other bunch of annual diners should do. They discussed how and why business should be bigger than ever if America is going to win in the world war

Things Settle Down; Show the Big Topic

Conditions Better in Michigan— Coal Coming In—Car Produc- tion Still Going On

DETROIT, Dec. 28—In spite of the abnormal conditions that have at times seemed to threaten the automobile industry, conditions in the past week seem to have calmed down considerably, and the manufacturers are preparing to attend the New York show and get ready for the Spring business. Throughout the city and the state the coal situation has eased up, due partly to the holidays, but more directly due to receipt of coal shipments.

Recently 1800 carloads of coal arrived in Detroit and there is a prospect of eight or ten times that amount arriving in the next 10 days. Grand Rapids reports every dealer supplied, and 100 tons of coal on hand. The Sparks-Withington Co., Jackson, states that though the electric power company has only a limited supply of coal on hand, it has sufficient. This company also states a more cheerful outlook on the part of car manufacturers. Some time ago stop-orders on parts for manufacturers were more or less common, but recently orders have been coming in in a manner that indicates that they are getting their nerve back and going ahead on a square basis.

There is a strong possibility that the automobile and parts manufacturers of Jackson will form a shell company similar to that recently formed in Detroit. During the past week Mayor Sparks of Jackson has received a telegram from A. W. Copland asking if the manufacturers would be interested in forming such a company, to which the manufacturers replied affirmatively. A survey of the companies will be made and a committee may be sent to Washington to arrange the details.

The Harroun Motor Co., Wayne, is rapidly speeding its production up, and is now shipping 30 cars per day. Freight car and tool shortage, hindering the Detroit manufacturers, is less acute in Wayne, and Harroun reports no difficulty in that direction.

During the past week the Liberty Motor Car Co. has shown a marked expansion in its dealer organization, and the manufacturers are most optimistic for the coming season. Among the new agencies established are the following: F. E. Stuyvesant Co., Cleveland, O., which will have practically the entire state. A branch house is opened in Toledo, and later others will be established in Columbus and Cincinnati; J. D. Moore, Walla Walla, Wash.; Twin City Motor Car Co., Minneapolis, Minn.; Edgar F. Sanger Co., Milwaukee, Wis., and the Means Automobile Co., Des Moines, Ia.

As an example of the further working out of the drive-away problem, to relieve the freight car situation, two examples are cited whereby passenger cars have been delivered on trucks overland. In

one case three twin-six Packard enclosed cars were loaded on Packard 3-ton trucks, and started on Dec. 24 for Baltimore, a fourth truck carrying a passenger car body. The second instance is of a Washington, D. C., cartage man that contracted to bring two Cadillacs back with him on two Packard 3-ton trucks he was driving back for his own use. Drive-aways are certain to increase, and in the case of trucks at least it is doubtful if any will leave without some useful load.

New Lancaster Tire Appears

LANCASTER, OHIO, Dec. 27—The Lancaster Tire & Rubber Co. of Ohio, which will take over the business of the Lancaster Tire & Rubber Co., a West Virginia corporation, has been chartered with a capitalization of \$500,000 by Lancaster and Columbus capitalists. The officers of the company are Frederick A. Miller, president; E. E. Lerch, vice-president; Orr H. Williams, general manager and treasurer, and J. Lawrence Porter, secretary. These officers, together with F. J. Mackin of Columbus, C. S. Hutchinson of Lancaster and H. V. Blaxter of Pittsburgh constitute the board of directors. The plant, which has been in operation in Lancaster for some time, will be continued at that place. The general offices will be removed to Columbus. Much new machinery and equipment will be installed. The concern will continue the manufacture of the Lancaster Wire Grip and the Clingstone lines of tires.

Engineering Corp. to Solve Truck Problems

CHICAGO, Dec. 26—The Engineering & Sales Corp., 122 South Michigan Avenue, Chicago, has taken over the engineering problems and supervision of purchases of the Oklahoma Auto Mfg. Co., Muskogee, Okla., and of the Mutual Truck Co., Sullivan, Ind.

Leonard Veith Passes Away

NEW YORK, Dec. 26—Leonard Veith, secretary of Asch & Co., died last week.

Maxwell Maintains Driveaway Corps

DETROIT, Dec. 29—The Maxwell Motor Car Co. is maintaining a special force of from 75 to 100 drive-away men that are available at all times, and one drive-away during the past week is typical. Fifty Maxwell trucks, each loaded with a Maxwell passenger car, held the following schedule to Chicago, a distance of 287 miles:

First day, Detroit to Clinton, Mich., 55 miles.

Second day, Clinton to Coldwater, Mich., 65 miles.

Third day, Coldwater to Chicago, 175 miles.

The trucks arrived in the best of condition, and the passenger cars were delivered directly at the salesroom door in possibly better condition than if carried by freight. As stated, the Maxwell company has at hand a large crew of drive-away men, and for these a quantity of heavy, warm clothing is supplied. Girls

Dealer Must Pay 5c with His Show Pass

Even Free Ticket Won't Get Him Into New York Exhibit This Year For Nothing

NEW YORK, Dec. 31—The dealer may get into the New York show for nothing this year but he will have to pay a war tax of five cents. He will present his dealer ticket at the box office with a nickel and will be given, probably, a small war tax ticket. This he will throw into the ticket box together with his dealer ticket.

Otherwise the arrangements are about the same as they were last year. To about 32,000 dealers have been sent three tickets each, entitling them to three individual admissions. While this arrangement caused some complaint from dealers last year, the percentage of complaints is said by the management not to be great enough to justify a change in the plan. Tickets were mailed out Friday and Saturday, Dec. 28 and 29, so they should all be in the hands of dealers in time, barring unforeseen delays in the mail.

The old button and rain check plan is no longer used and the dealer does not have to register. However, in case any dealer did not receive tickets or has been appointed a dealer since the tickets were distributed or has any other admission question to take up, he will find the management's dealer office at the right hand side of the gate just outside the main entrance on Lexington Avenue.

Salesmen, exhibitors, employees and others are handled on a separate plan.

It is expected that about 3,000 dealers will attend. The attendance each year at the New York show is generally a little below 3,000 and at the Chicago show a little above 3,000. The gross admission at each show is about 300,000.

The management states that the show this year will have 335 exhibits and will exceed all previous shows. The first show was held in Madison Square Garden, Nov. 3, 1900, with about 50 exhibitors. The second show in 1901 had 93 exhibitors; in 1903 there were 154; in 1904, 185; in 1905, 250.

are used for local deliveries, but the long distance work is too strenuous. About 37 girls are used at the Oakland Avenue plant.

M. A. M. A. Admits 8 Members

WASHINGTON, Dec. 21—The Motor and Accessory Manufacturers' Association have admitted 8 new members. They are: Thomas Dunham Co., Aurora, Ill.; C. A. S. Products Co., Columbus, O.; Union Switch & Signal Co., Swissvale, Pa.; F. A. Ames Co., Owensboro, Ky.; Hill-Smith Metal Goods Co., Boston; Brewer-Tichenor Corp., Cortland, N. Y.; Carlisle Cord Tire Co., New York, and Oldberg Mfg. Co., Detroit.

Hereafter the association meetings will be held in New York.

Would Load Million More Tax on Owners

But Publicity Given to Bay State Scheme May Take Wind Out of Sails of Schemers

BOSTON, Dec. 29—Governor McCall of Massachusetts and some of the subtle politicians in the Bay State got a surprising jolt yesterday when a plan to mulct the motorists out of another \$1,000,000 was given wide publicity. A short time ago a commission appointed to raise revenue went to the Highway Commission and stated that the commonwealth was in need of a few more millions for current expenses in 1918 and that \$1,000,000 of the money held by the commission for road maintenance should be turned into the State treasury. This the commission flatly refused to do. It was pointed out that the money was secured by law for road maintenance and it could not be used for anything else.

Then the revenue gatherers said that the motorists would have to contribute another \$1,000,000. So the plan was arranged to tax them \$5 per vehicle extra and raise the operating fee from \$2 to \$5. This would mean just about \$1,000,000. The motorists were not consulted. There were no hearings. Everything was to be done quietly.

Governor McCall was to be asked to embody the suggestion in his annual message to the legislature. It was to be a patriotic duty for the motorists. To do that would give it a punch, and it would go to a committee who would try to put it across "because the Governor wanted it," etc.

James T. Sullivan, legislative chairman of the Bay State A. A., the New England representative of Motor World, got a quiet tip about it. He did not waste any time, but put the matter up to the Boston Automobile Dealers' Association to call together the heads of all the motor organizations to protest. The suggestion was made that the motorists accept the plan provided that every vehicle on the highways and every person in control of a vehicle be treated the same as the motorists.

The meeting was called Thursday afternoon. The motor representatives then agreed to draft a letter to be sent to Governor McCall protesting against it. Friday morning all the Boston papers came out with stories in which the protest feature stood out in the headlines prominently. That same day the letter was signed and sent to the Governor, and Sunday it will be printed in all the papers, so that it will get two wallops.

As the Governor reads his message to the legislature on Jan. 2 there was not any time to waste. Now the motorists have put the matter up to him. And even if he does recommend it in his message it will lack the punch because of the publicity. Already some of the members of the legislature have been apprised of the plan and they have agreed to fight

it if it ever gets into the House or Senate. In other words, the motorists beat the planners to it.

Here is the letter sent to Governor McCall:

Boston, Dec. 28, 1917.

His Excellency, Samuel W. McCall, State House, Boston, Mass.

Your Excellency—We have been informed that you have been requested to urge in your forthcoming message to the Legislature the necessity of raising additional funds during the present war, and that it has been suggested to you that you urge upon the Legislature the passing of a law taxing automobilists of Massachusetts \$5 each, and of raising the fee paid by operators to \$5.

If we have been correctly informed, we respectfully wish to protest against the passing of any such law, and respectfully urge you not to make such a recommendation in your forthcoming message.

We believe that as a body the owners of motor vehicles are patriotic; that they are lending their aid to the Government in various ways to help along in the war work, and that they will be willing to do so in the future. We do believe, however, to have the motor industry solely singled out as a means of revenue at this time is unfair. If it should be decided that all vehicles such as horse-drawn vehicles, street cars, as well as the motor vehicles should be charged a war fee we shall be glad to assume this added fourth burden.

The motor vehicle is not a luxury. The motor owners contribute now in registration fees some two million dollars to the State, while in personal property taxes they contribute many more millions, and the industry as a whole has added millions to the taxable values of the State of Massachusetts, while giving employment to thousands of men and women who receive good wages.

In addition to the above, the Government has placed a war tax on motor vehicles.

If agreeable to you a committee representing the automobile interests of our Commonwealth will be glad to wait upon you.

Yours respectfully,

George W. McNear, president Massachusetts State Automobile Association.

Arthur F. Teele, president Bay State Automobile Association.

J. H. MacAlman, president Boston Automobile Dealers' Association.

J. S. Hathaway, president Boston Commercial Motor Vehicle Association.

W. A. Thibodeau, counsel Automobile Legal Association.

Francis Hurtubis, Jr., counsel National Automobile Association.

Champion After Winter Business

TOLEDO, OHIO, Dec. 28—The Champion Spark Plug Co. has inaugurated a campaign in behalf of its priming plug.

The purport of this campaign is to create a universal demand for priming plugs by owners who drive their cars throughout the cold months.

To further stimulate the demand the company has contracted for several thousand lines of selling copy in the periodicals to force home the fact that priming plugs are essential to successful winter driving, and have arranged a special window display which will be installed in dealers' windows by the crews of special display Champion cars now touring this country and Canada.

In addition the company has had printed for distribution by dealers an envelope insert which sets out the advantages offered by Champion priming plugs and which will bear the dealer's name.

Direct letters to dealers pointing out the possibilities priming plugs offer in stimulating winter trade and in producing profits already are obtaining the desired results.

Uncle Sam to Enter Car Repair Business

Will Establish Big Maintenance Depots for Taking Care of the Liberty Trucks

WASHINGTON, D. C., Dec. 29—The Liberty trucks, the result of combined effort on the part of America's best engineers and largest manufacturers, are assured of proper maintenance in France. This is the chief item of interest in the past week during which many Government officials took advantage of the holidays to leave the city. Elsewhere in these columns is the story of the new plan for maintaining the trucks in Europe. It is, as have been many other worth-while plans, the result of effort by Christian Gird, chairman of the Military Truck Production Board, which now controls the production, engineering and maintenance of all Quartermaster trucks.

There has been considerable agitation in Washington in the last few months about this matter of maintenance, many people wondering if the work was going to be left to the soldiers of the motor transport unit, who while probably excellent soldiers are not familiar with automobile work. Hence the especial welcome that greets the news insuring proper care for our trucks abroad.

Absence of officials marked absence of much Government activity and the week has passed without any important acts.

Word has come that the first of the B trucks will be ready probably about the 10th of January and will then start the first of the drive-aways of Uncle Sam's own trucks. A repair plant has already been started at Baltimore to be completed by March 1 which will care for necessary repairs of the trucks, and will also house the general equipments needed by the trucks abroad.

A committee of Cleveland business men arrived in Washington to-day representing every industry of that city to engage in a series of conferences with Government officials regarding war work. It is planned to co-ordinate the entire industrial activities of all Cleveland under a committee to remain here, and which will deal for all the various businesses of Cleveland with Government departments as if it represented a single industry, thus simplifying matters for the Government. For example, if the War Department requires certain war work and it takes three separate firms to properly handle the job, all the War Department has to do is to place the entire contract with the representative committee which will distribute it to the different plants in Cleveland.

Very important is the news of the completion of the trip overland by the truck convoy from Detroit. This marks a new era in the history of truck transportation and begins the day when motor trucks will play a most important and vital part in the commercial and military affairs of the nation.

Specifications of the Leading Cars

**Revisions Are
Made in Table
Every Week**

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DODGE BROTHERS									
4-31x4 24	Stewart M.R.	D	8	114	28x4 88	...	1800	1800	...
6-4 25	Stung	W	120	36x4 88	...	2725	2225	2225	4150
4-31x5 16.9 Conn	Cartier	W	106	36x4 88	...	7725	725	1005	945
4-31x5 18.6	Cartier	Dynaco	DP	3	115	22x4 88	945	945	...
6-3 24 21.6 Remy	Stung	W	117	32x4 88	...	11005	1005	1845	...
4-31x5 24.0 Conn	Stung	A-Lite	DP	3	115	22x4 88	1105	1125	...
6-31x4 26.4 Conn	Stung	A-Lite	DP	3	120	24x4 88	11545	1275	1545
4-31x4 43	Zeuth	W	4	140	24x4 88	...	5500	...	6000
4-31x4 22.5 Ova	(Rally King)	...	...	...	...	345	300	500	605
6-31x4 25.3 A-Kent	Dynaco	D	3	115	22x4 88	...	2000	2050	2060
6-31x5 23.4	Wells	D	3	119	24x4 88	...	11405	1405	1705
6-3 24 21.6 Remy	Stung	W	113	32x4 88	...	3275	875	...	...
12-31x5 20.7	Stung	W	125	34x4 88	...	2000	2000	2000	4800
6-3 25 21.6 A-Lite	Stung	W	118	32x4 88	...	11185	1140	...	...
4-31x4 24.3	Stung	W	123	24x4 88	...	1885	1885	...	...
4-31x4 16.9 A-Kent	Stung	Remy	C	3	106	20x4 88	1905	...	...
4-31x4 14.4 A-Kent	Zeuth	W	3	100	20x4 88	...	760	...	...
4-3 24 14.4 A-Kent	Wagon	...	3	100	20x4 88	...	1065	...	...
6-31x5 20.4 Remy	L-N	DP	3	121	24x4 88	...	1065	1725	2200
6-31x5 20.4 Remy	L-N	DP	3	127	24x4 88	...	11725	2005	2200
12-31x5 26.3 Debo	L-N	DP	3	121	24x4 88	...	2005	2005	2760
12-31x5 26.3 Debo	L-N	DP	3	127	24x4 88	...	2225	...	2600
6-3 24 21.6 Remy	Stewart	Apico	C	3	116	22x4 88	1085	...	...
6-3 24 21.6 Remy	Stewart	Apico	C	3	116	24x4 88	11255	1255	...
6-31x5 20.4 Debo	Ova	D	3	125	24x4 88	...	1050	11750	1600
4-31x4 16.9 A-Kent	Stung	Bijer	DD	3	113	22x4 88	1250	1250	...
4-31x4 22.5 A-Kent	Zeuth	W	3	119	24x4 88	...	1355	1355	...
4-31x4 22.5 A-Kent	Zeuth	W	3	114	24x4 88	...	1640	...	...
4-31x5 19.0 Remy	Schubler	Remy	C	3	110	22x4 88	875	925	1060
6-3 24 22.5 A-Lite	Zeuth	A-Lite	DP	3	118	24x4 88	11405	1405	1670
6-31x4 20.4 Remy	Stung	W	120	34x4 88	...	1675	1675	...	...
6-3 25 25.8 A-Kent	B & Ball	Bijer	DD	3	127	24x4 88	1005	11005	1005
6-31x5 25.3 Remy	Stung	Ova	C	3	117	24x4 88	11005	11700	1600
4-31x4 25.7 Debo	Stung	Ova	DD	3	...	24x4 88	11205	1205	1255
6-31x4 25.3	Wells	D	3	126	24x4 88	...	1205	1205	1205
6-31x4 25.3 Conn	Wells	DD	3	116	22x4 88	...	1845	...	1510
6-31x4 25.4 Conn	Wells	P	3	125	24x4 88	...	1805	...	1785
6-31x4 25.3 Debo	Stung	D	3	115	22x4 88	...	1300	1300	...
4-31x5 48.3 Berling	Wells	DD	4	120	27x5 88	...	15120	9000	2000
4-31x4 48.3 Berling	Wells	DD	4	125	27x5 88	...	16060	9000	6000
4-31x4 25.9 Debo	Stung	G & D	D	3	120	24x4 88	...	1005	...
4-31x5 25.9 Debo	Stung	G & D	D	3	125	24x4 88	...	2775	...
6-31x5 25.7 Debo	Schubler	Bench	DD	3	126	24x4 88	...	1600	...

ABBREVIATIONS—"A-C" Allen-Chalmers, "L-N" Lees-Neville, "T" Tillotson, "B & Ball" Ball & Ball, "Am" Atomizer, "Reck" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "Fr" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myer. NOTE—37½x5½ means that the rear tires are 37½x5½, and the front are smaller. Detachable top, 300x, means \$300 extra.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

New York, N. Y.....	Salon, Automobile Salon, Inc.,.....Jan. 2-9	St. Louis, Mo.....	St. Louis Auto Mfrs. & Dealers' Assn. Robert E. Lee, Mgr.
New York, N. Y.....	Astor Ballroom. John R. Eustis, Mgr.	Hartford, Conn.....	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.
New York, N. Y.....	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Newark, N. J.....	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.
Washington, D. C....	Carnival and Open House Week. Automobile Trade Assn. of Washington.	San Francisco, Cal..	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.
Providence, R. I.....	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	San Francisco, Cal..	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.
Philadelphia, Pa.....	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wanamaker's Garage.	Waterbury, Conn.....	United Shows Co.,.....Feb. 18-23
Rochester, N. Y.....	Tenth Annual, Exposition Park....Jan. 14-19	Syracuse, N. Y.....	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.
Milwaukee, Wis.....	C. A. Simmons, Mgr.	Grand Rapids, Mich..	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.
Milwaukee, Wis.....	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Springfield, O.....	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.
New York, N. Y.....	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Pittsfield, Mass.....	State Guard, State Armory....Feb. 18-23
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Nashville, Tenn.....	James J. Callagan, Mgr.
Cleveland, O.....	Seventeenth Annual, Cleveland Automobile Show Co., Wignmore Coliseum. Fred H. Caley, Mgr.	Nashville, Tenn.....	Nashville Auto Trade Assn., Hipodrome.
Detroit, Mich.....	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Des Moines, Ia.....	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vleet and Dean Schooler, Mgrs.
Buffalo, N. Y.....	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	So. Bethlehem, Pa....	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.
Wilmington, Del.....	Wilmington Automobile Show, Hotel Du Pont. H. N. Partington, Mgr.	Cedar Rapids, Ia....	Commercial Vehicles.....Feb. 2-9
Scranton, Pa.....	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Quincy, Ill.....	Cedar Rapids Auto. Trade Assn., Auditorium.
Portland, Ore.....	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Muskegon, Mich.....	First Annual, Armory. L. B. Bartlett, Mgr.
Oklahoma City, Ok..	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Bridgeport, Conn....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.
Mifflintown, Pa.....	Automobile Trade Assn., Valley Stream Auditorium.	Bridgeport, Conn....	Fourth Regiment Conn. Home Guard, State Armory & Casino. E. B. Steiber, Mgr.
Scranton, Pa.....	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Columbus, O.....	Auto Exhibitors Co. W. L. Carney, Mgr.
Baltimore Md.....	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory.	Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.
Allentown, Pa.....	Lehigh Auto. Trade Assn., Taylor Motor Co.'s Garage. P. W. Lelsner, Publicity Mgr.	Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.
York, Pa.....	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.
Bridgeton, N. J.....	Bridgeton Automobile Dealers' Assn.	Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.
Harrisburg, Pa.....	Harrisburg Motor Dealers' Assn., Emerson - Brantingham Bldg. J. Clyde Myton, Mgr.	Clinton, Ia.....	Clinton Automobile Dealers' Ass'n, Coliseum.
Chicago, Ill.....	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Green Bay, Wis.....	Brown County Automobile Trade Assn.
Harrisburg, Pa.....	Capital City Motor Dealers' Assn., J. Clyde Myton, Mgr.	Great Falls, Mont...	Montana Automobile Distributors, Assn.
Chicago, Ill.....	Salon, Elizabethan Room of Congress Hotel.	San Francisco, Cal..	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.
Manchester, N. H....	Academy. Couture Bros.....Jan. 28-Feb. 2	Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.
Kalamazoo, Mich....	Kalamazoo Automobile Dealers' Assn., Armory.	Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.
Greensburg, Pa.....	Westmoreland Automobile Dealers' Association.	Stockton, Cal.....	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.
Peoria, Ill.....	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland Mgr.		
Minneapolis, Minn...	Twin City Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.		
Bronx, N. Y.....	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.		
Binghamton, N. Y...	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.		
Lancaster, Pa.....	Automobile Track Assn., Fidelity Bldg. R. W. Shreiner, Mgr.		
Portland, Ore.....	Portland Automobile Trade Assn., Auditorium. M. O. Wilkins, Mgr.		
Kansas City, Mo.....	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.		
Kansas City, Mo....	Third Annual Tractor, Kansas City Tractor Club.		

Conventions

New York.....	Nat'l Automobile Dealers' Assn., Meeting of directors and vice-presidents from Eastern States.
New York.....	Tenth Annual Dinner, Motor & Accessory Mfrs.' Assn., Waldorf-Astoria, 7:30 p.m.
New York.....	Convention, National Association of Automobile Accessory Jobbers, Hotel Astor.
Montreal, Can.....	Convention of all men interested in the Automobile Industry in Eastern Canada.
Chicago	Annual Convention, Garage Owners' Assn. of Ill., Green Room, Congress Hotel.
Richmond, Va.....	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.
Toledo, O.....	Toledo Auto Shows Co.,.....Feb. 11-16
Duluth, Minn.....	Duluth Automobile Trade Association. John J. Lane, Mgr.
Great Falls, Mont..	Montana Automobile Distributors' Association, Lexington Garage. A. J. Breitenstein, Mgr.

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 2

New York, January 9, 1918

Ten cents a copy
Two dollars a year

The Miller Uniform Tire Idea And What It Means To Miller Dealers

FIRST, Miller builds uniform tires—tires that give 99 per cent uniform mileage. Not more than one out of a hundred comes back for adjustment. This matchless uniformity of Miller Tires assures you uniformly satisfied customers. For once having used Miller Tires, no motorist will again take a chance with other makes.

Just as Miller Tires are uniformly excellent, so is Miller advertising steady—consistent—convincing. Full page advertisements in leading national publications tell the wonderful story of Miller uniformity to motorists the world over.

Nor does Miller stop with a tire of unequaled perfection and with a national wide advertising campaign. It gives you service that ties up your name and your store to Miller uniform quality and to the thousands of dollars that are being spent for you in national advertising.



Miller  **Tires**
GEARED-TO-THE-ROAD

A recent survey of tire conditions has just been completed. The inside facts revealed by 25,349 answers from dealers, distributors, motorists and others being checked, compiled and charted in one big volume.

If you are contemplating

making a change, and are interested in connecting with a proposition such as Miller has to offer, send in your name today and reserve one of these books. The number is limited. So, if you want to be sure to get a copy, send in your name today. It will be sent free.

THE MILLER RUBBER COMPANY
Dept. A-4, Akron, Ohio

UTILITY *Protected Foot Rail* HEATER

Sells to

Keep the Driver Warm



Watch for the Gold Plated UTILITY Protected Heater in the Anderson Six at the Shows.

Gentlemen who drive their own cars know what it is to be all but frozen to the wheel in cold winter weather. It is an experience they would rather not repeat.

And their chauffeurs—if they employ them—are less efficient, more liable to get into trouble, when their hands are cold and they are uncomfortable all over.

The new UTILITY Front Seat Heater *keeps the driver warm*. It operates whenever the car does, and it solves the problem of comfortable driving in winter that all manner of robes, coats and gloves have failed to solve. A big seller for dealers—and the price is low. Rounds out the line of UTILITY Protected Heaters with a *new necessity that sells*.

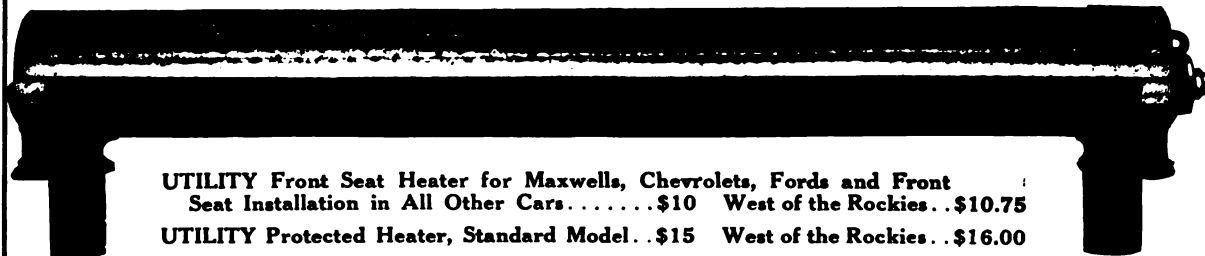
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Write for unusually attractive literature to send to your UTILITY prospects.

Ask for combination counter-display wall-hanger.

HILL PUMP VALVE COMPANY

Archer Ave. & Canal St., Chicago.
Eastern Sales Office: 149 Church St., New York City.
Manufacturers of Famous UTILITY Auto Specialties.



UTILITY Front Seat Heater for Maxwells, Chevrolets, Fords and Front Seat Installation in All Other Cars \$10	West of the Rockies . . \$10.75
UTILITY Protected Heater, Standard Model . . \$15	West of the Rockies . . \$16.00
UTILITY Jr. Protected Heater for Fords . . . \$7.50	West of the Rockies . . \$8.00

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DEALERS, JOBBERS AND GARAGEMEN

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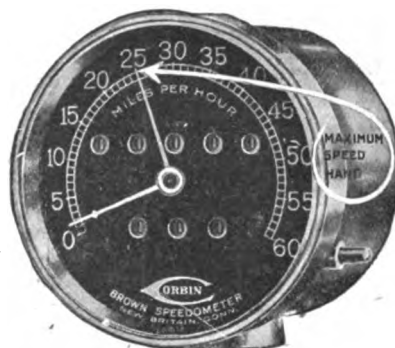
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Accurate Speedometer Service

THE

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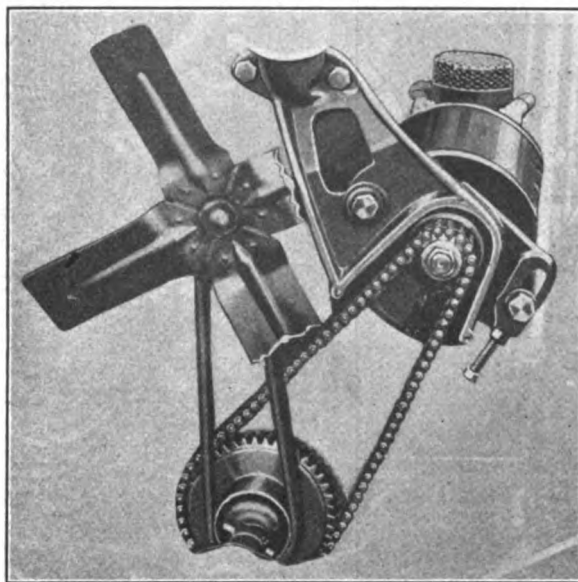
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MOTOR WORLD

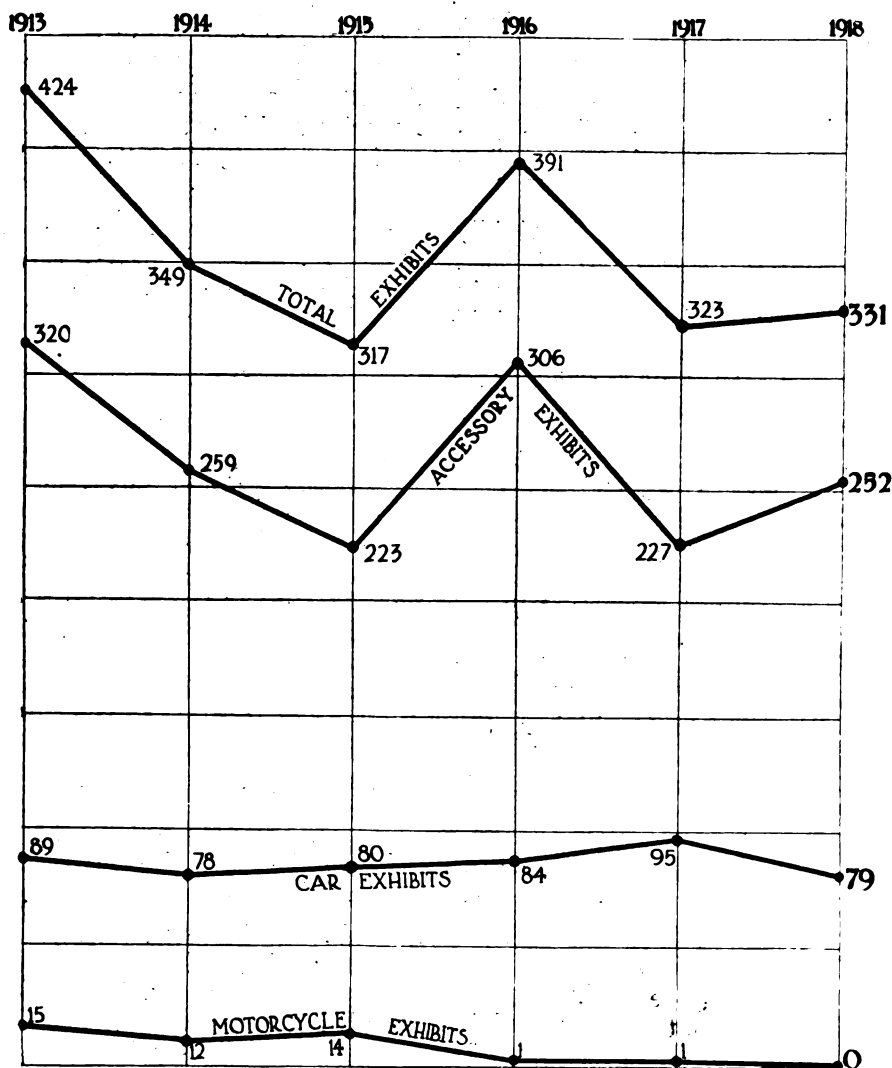
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, January 9, 1918

No. 2

1918 New York Show A Mighty Inspiration



This chart shows the number of exhibits for six years. Note how the "total exhibits" curve for this year rises above that of last year

More Exhibits Than Last Year—Cars Made More Salable—Progress the Keynote

NEW YORK, Jan. 5—The eighteenth annual New York show, which opened at 2 o'clock this afternoon in Grand Central Palace, is the best answer that could be given to those who have asked, "What has happened and what is going to happen to the motor car industry?"

The show carries a mighty message of progress and optimism. It exhibits the industry in some new clothes and quite a lot of the clothes that many people might expect would have to be discarded.

There are more exhibitors than there were last year. As much space is taken up as at previous shows; the entire four floors of the Palace that were used in former exhibitions are just as crowded with as much merchandise as ever before, if not more so.

There is progress in engineering and design. The styles in bodies follow the fashion, just as they always have, and there is newness everywhere.

Throughout the show service flags hang in the exhibits, showing

the number of men the different factories have sent to war. Many of the new features in the cars are in accord with wartime life, which even shows itself in new body designs. Features of economy are apparent everywhere. Engineers and designers have made great efforts to make it cheaper for the car owner to operate his transportation vehicle.

The dealer who has been worrying about the future of the industry he represents should see this show. It will put new hope into his heart and enable him to go back home with new ideas and thoughts and make money. It will imbue the man who has been inclined to quit with a new spirit and send him forward along the pathway he never should have forsaken.

War Atmosphere

The atmosphere of the times is seen in the decorative plan. On the lofty columns are flags of America and her allies. Where wall decorations have been needed there are paintings of modern war scenes.

War has laid its hand upon the industry, but has done nothing except to refine it and send it more efficiently along the path of progress it has traveled since its first day.

There are ten or a dozen new cars, shown by Overland, Scripps-Booth, Owen-Magnetic, Olympian, Crow-Elkhart, Moore, Templar, Hupmobile, Liberty, Elgin and Anderson.

The new Overland four, which is to sell for less than \$500, is surrounded by a crowd. Hupmobile has an entire new line of inclosed vehicles. Scripps has a new six and there are valve-in-the-head designs shown by a half dozen who never had them before.

These new cars are filled with proper selling features for these times. Every change in new design has been effected with a view to making the cars more attractive to wartime purchasers, but with all these alterations makers have not neglected to add new styles in bodies and to fill the show with beautiful colored creations.

Engineers have realized that the car buyer looks now at upkeep perhaps more than at the first cost and they have introduced many features of upkeep economy.

There are hot-spot manifolds

which give greater gasoline efficiency; oil cups have replaced many grease cups because the owner can better operate them; inside drives are attractive to the man who now drives his own car instead of having a chauffeur.

Economy Features

Separate cylinder heads, notably on the Cadillac, make cylinder cleaning less expensive. More body space has been secured on shorter wheelbases. There is more pressure feed lubrication. Thermo-static control is more prevalent.

Several additional makers have adopted Hotchkiss drive. Brackets and fasteners are made of lighter construction. More cooling space has been provided around the cylinders. Carbureters have been fitted with priming devices which make starting easier and more economical.

Control members are made more accessible to the owner-driver. Transmissions include more anti-friction bearings. Brake linkage has been made better. Upholstery springs have been improved and tops are easier to operate and built to wear longer.

Windshields are more rigidly fastened. Divided front seats have been eliminated in many cases in order to make bodies more rigid and lasting. Vacuum feeds have saved the space that the cowl tank used to take and all the way through the cars there is a great firmness of construction.

Cars Better Buys

All those things make the car a better buy for the man who perhaps looks longer among cars these days before he buys.

War lines predominate in new body designs. The sides are straighter, hoods are higher, the top line is more nearly horizontal and incorporates a bevel extending down from the top, sometimes several inches. These lines are found in the Owen, Cole, Winton, Case, National, Stearns, Velie, Marmon, McFarlan, Silver Specials and others.

The cars are lower in appearance, the seats are higher, and in inclosed models the glass area is greater. Designers of inclosed cars have sought to eliminate rattle by anti-rattle devices.

There are quite a number of new

things in the four-passenger designs, both touring and sport models, all of which have snappy lines that accord with the spirit of the times.

Nothing could look more warlike than the disk wheels shown on other pages of Motor World.

In colors there is almost everything one could think of; maroons, olives, grays, greens, blues, slates, canary reds and yellows, whites, pea greens and tans.

There are four electrics—Detroit, Milburn, Ohio and Baker R & L, some of which imitate gas-car lines.

There is an air of business throughout the show. The accessory people, on the two top floors, believe 1918 will be a big year. With some of them December is the biggest month they have ever had. Jobbers are coming to the show in great numbers. They foresee an enormous business in the supplies and accessories that must be purchased by the nearly 5,000,000 cars in operation in America and look forward to a big business among dealers.

Hotels Filled

Hotels are filled with headquarters of manufacturers, many of whom have striking exhibits of their products. The Champion Spark Plug Co. has erected a complete store front at the Astor.

Those who have seen the show have had their eyes opened. They have found that the factories, with all their war work and war sensations, have been going ahead with production and design. There is no indication of the much talked of curtailment of a few weeks ago. The whole idea is one of that great necessity — transportation. The industry is still producing its car but with perhaps, a new idea of its necessity as a factor in world progress.

A few hours in the show are a great inspiration. Dealers who have not seen the New York show should see it if they can get there; if they can't get here they should see the Chicago show. They should see all the shows they can see this winter, and those who don't already know it should learn how essential a factor to-day is the industry they have helped create and should continue to sustain.

Government Gives Word of Praise to Our Great Industry



Governor Charles S. Whitman of New York

He opened the New York show Saturday afternoon, Jan. 5, in Grand Central Palace, paying a tribute to the motor car industry. Below is the essence of his opening address

ALL of our wealth, our ingenuity, our enterprise, our labor and inventive skill, as well as our man-power, must be and is devoted to the service of our country. And, perhaps, there is no other one manufacturing industry that may contribute more to the winning of the war than the one that is here represented.

The present world-wide conflict has demonstrated the tremendous importance of this new method of transportation and the great service to the country rendered by those who are supplying for the use of our armies this absolutely indispensable means of locomotion.

The motor so far has played a rôle in the struggle such as even the most enthusiastic military man never dreamed of before. It is true, as has been said, that "this war will be remembered as a war of trenches and of motors."

When we realize how great is the contribution of those whose labor and capital, whose time, energy and enterprise are devoted to this industry, to the cause of National Preparedness and National Defense, in the great field of aviation as well as in that of transportation on land, we are justified in saying that those here at work are engaged in patriotic service.

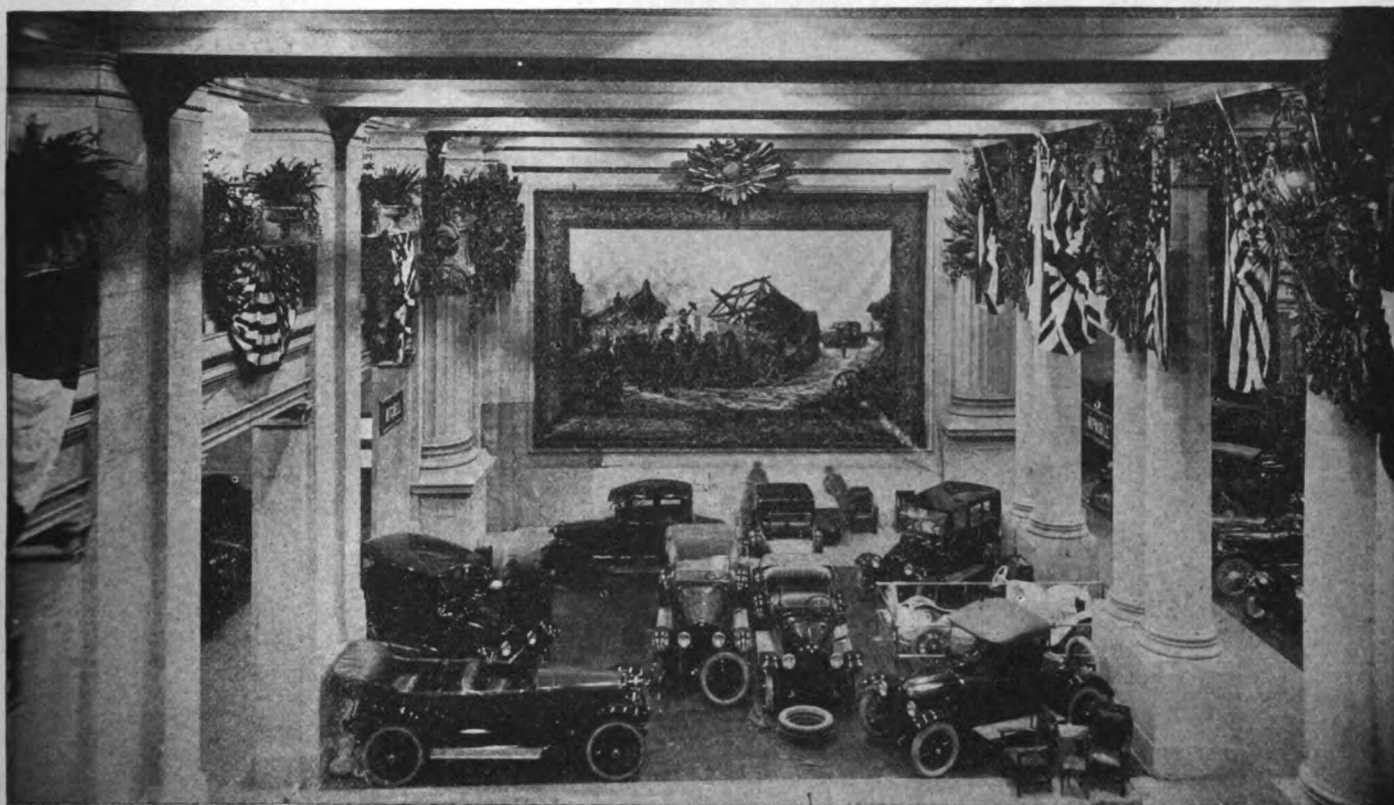
War Spirit Marks New York Show

In looking down the main aisle toward the entrance staircase the pillars themselves suggest the mighty power of the industry



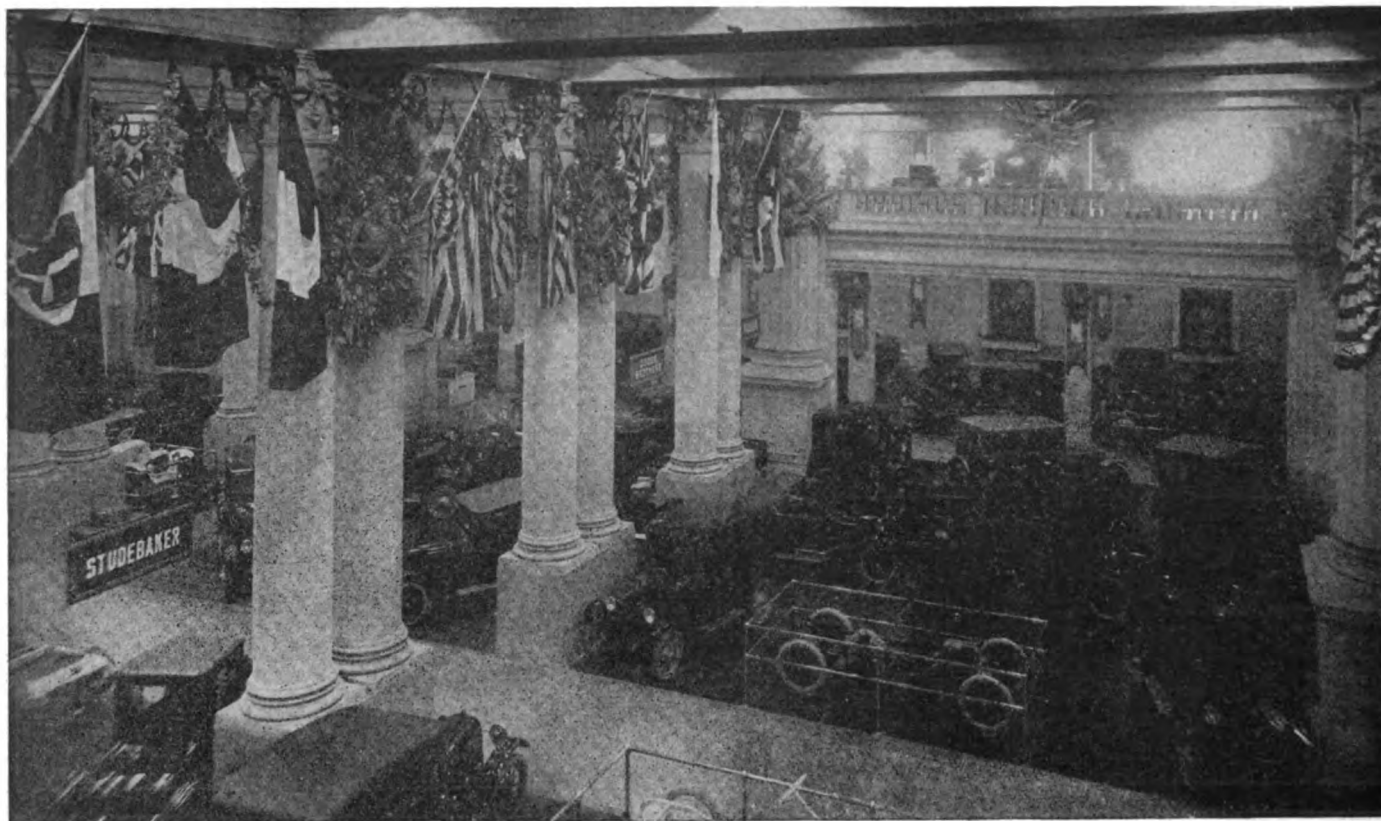
"Transportation" Is the Big Idea

A glimpse across the Studebaker and Mitchell exhibits discloses the motor car close behind the men who drive back the Boche



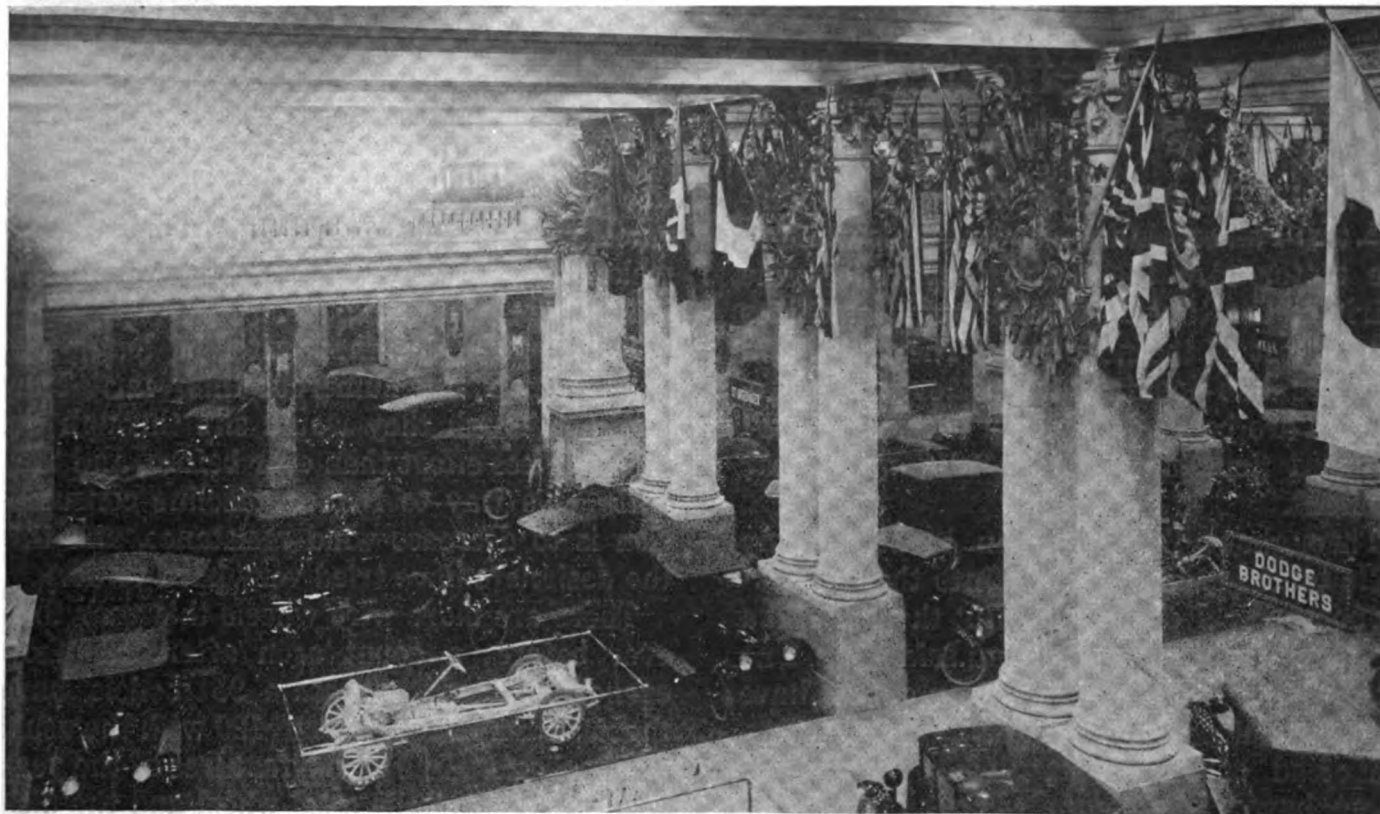
New Cars Draw the Public's Eye

The upper picture is of the Dodge display and the lower view is one obtained from many points by the throng of visitors



Year Shows Engineering Progress

New Studebakers are seen in the upper photograph, while below is shown a glimpse of the Cadillac and Reo exhibits, as usual of great interest



War—The Spirit of the Times

Is

Reflected in New Car Styles

A MARTIAL spirit has invaded Grand Central Palace. Mars has waved his wand at the motor cars there and they reflect the spirit of the times. Straight, military lines mark most of the new cars. They are more business-like-looking than ever before. Curves are being done away with and fancy business finds no place in 1918 motor car fashions.

Throughout the show can be seen many little touches that all blend into the spirit of economy in car operation. But there is still a big trend toward newness and salability. The men who make the cars better sellers have been busy since the last show.

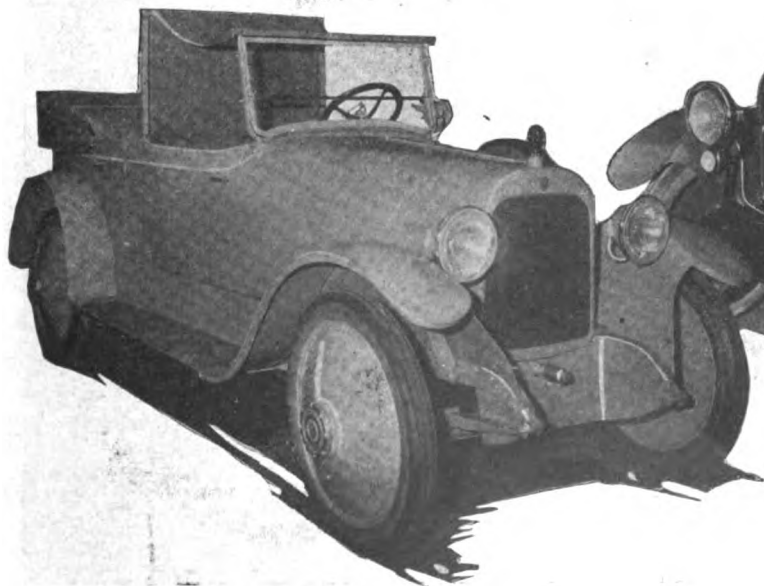
Instead of lengthening wheelbases engineers have found more room on the same wheelbase and have done many other skillful things. Everything has been done to make the car cheaper to run after it has been bought. But with all this business-like prac-

tice in design there are colors of many varieties and comfort features that should make this year's cars more popular than their 1917 predecessors.

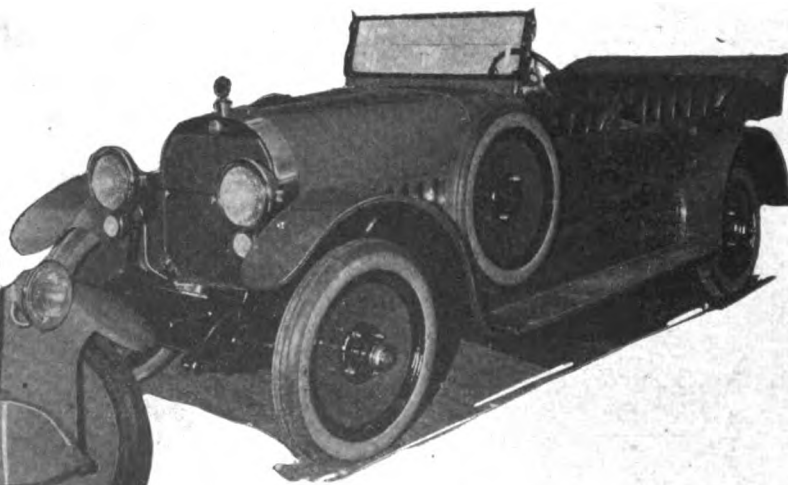
Sport cars, designed after a long, low, rakish model, are numerous this year. They look as though they would slip through the air with less effort than ever before, and they will. One way to reduce gasoline consumption is to decrease wind resistance, and this the designers have tried very hard to do.

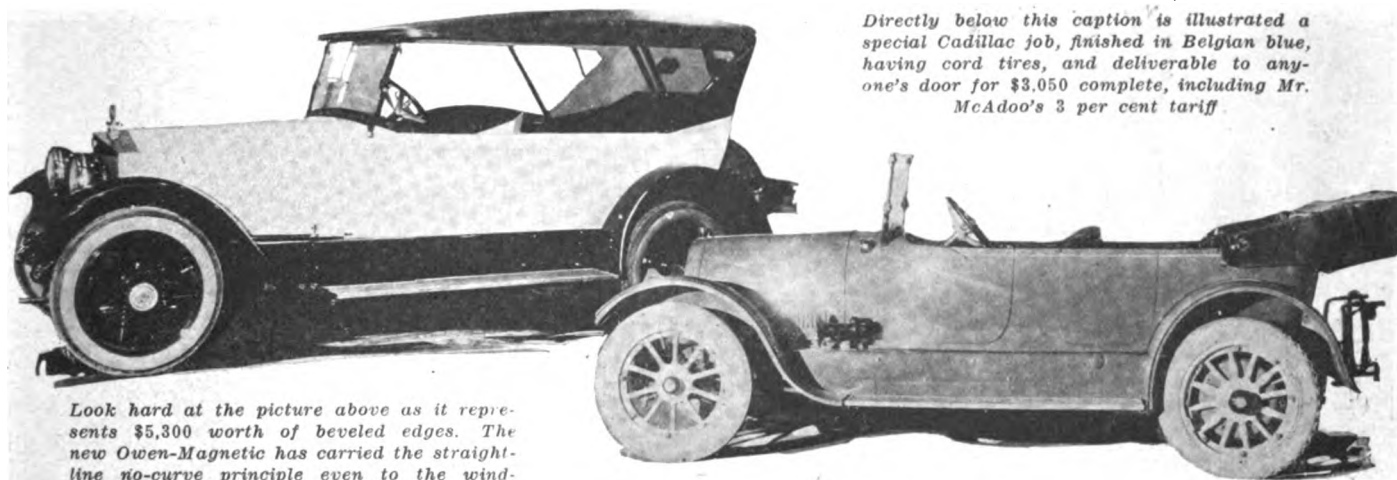
There are more wire wheels this year than ever before; a count soon after the show opened showed that some 95 models have them, as against only about 120 with the usual wood wheels. One of the features of the year is the coming of the steel wheel and the disk wheel. Look at the pictures at the bottom of this page and those on the opposite page and see if these new wheels do not give a decidedly military air to the new models.

Disk wheels and novel lines made the Anderson De Luxe convertible model, pictured below, a feature car at the show



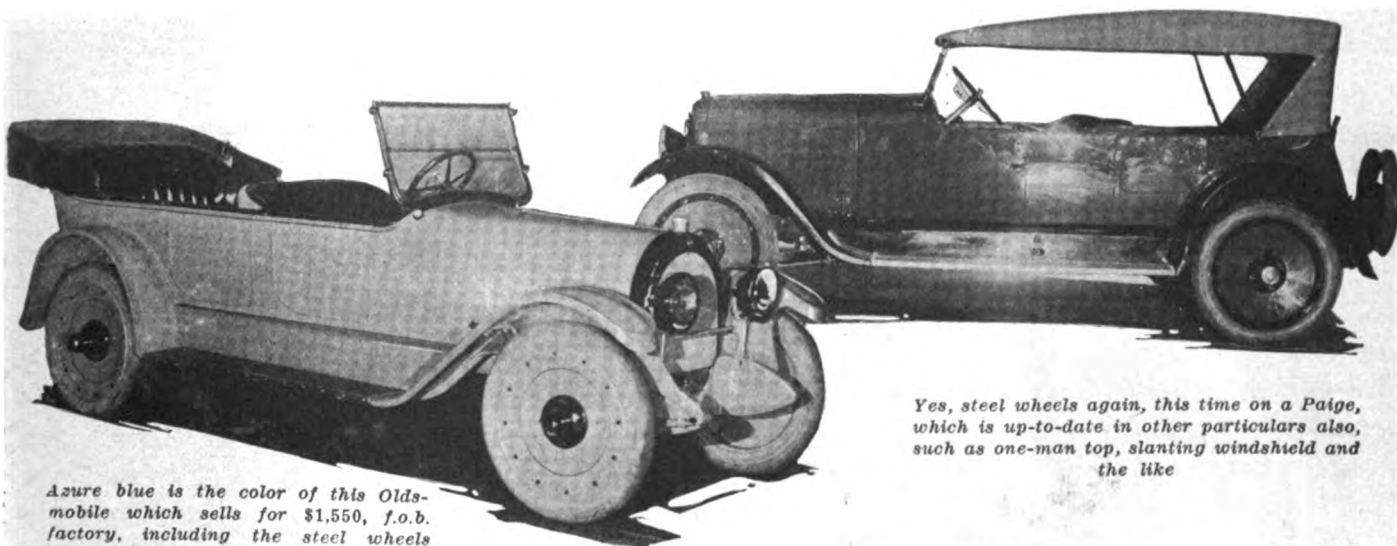
Many a blasé New Yorker opened his eyes at the McFarlan sport model with its steel wheels





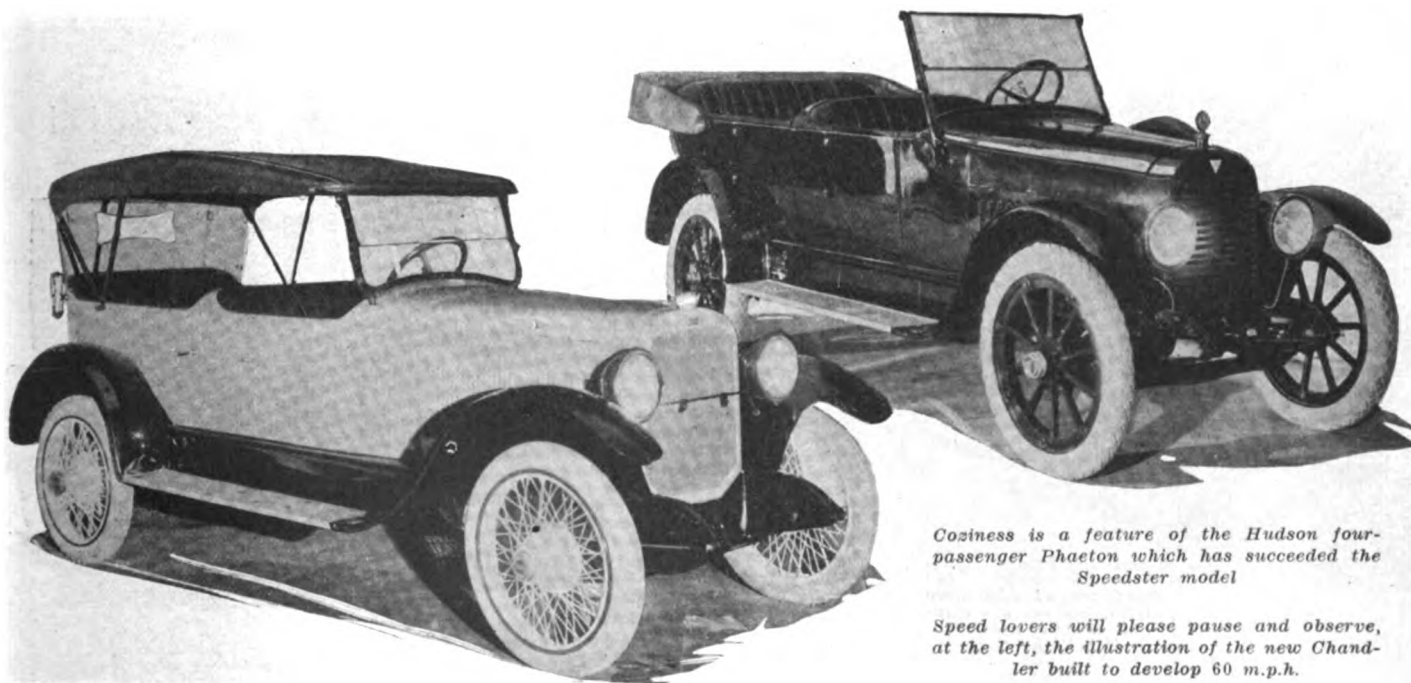
Directly below this caption is illustrated a special Cadillac job, finished in Belgian blue, having cord tires, and deliverable to anyone's door for \$3,050 complete, including Mr. McAdoo's 3 per cent tariff.

Look hard at the picture above as it represents \$5,300 worth of beveled edges. The new Owen-Magnetic has carried the straight-line no-curve principle even to the windshield posts, and the wheelbase is now 142 in.



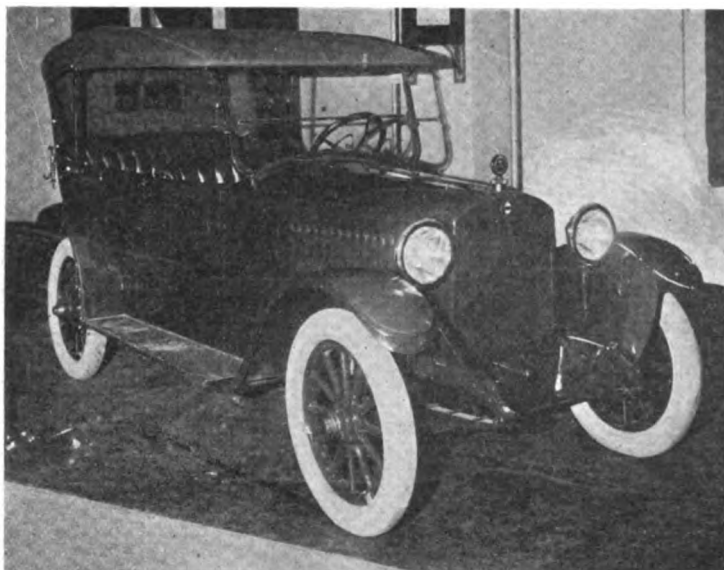
Azure blue is the color of this Oldsmobile which sells for \$1,550, f.o.b. factory, including the steel wheels.

Yes, steel wheels again, this time on a Paige, which is up-to-date in other particulars also, such as one-man top, slanting windshield and the like.

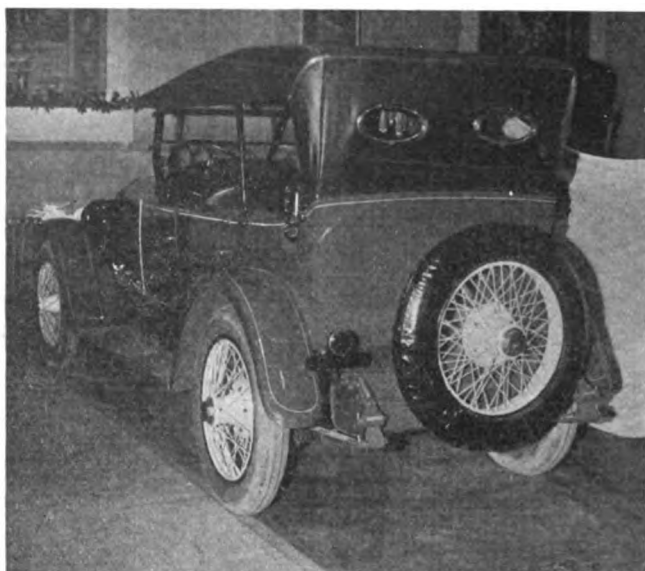


Coziness is a feature of the Hudson four-passenger Phaeton which has succeeded the Speedster model.

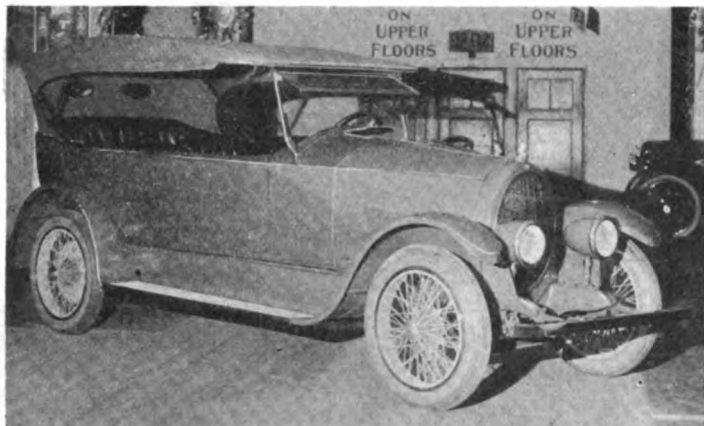
Speed lovers will please pause and observe, at the left, the illustration of the new Chandler built to develop 60 m.p.h.



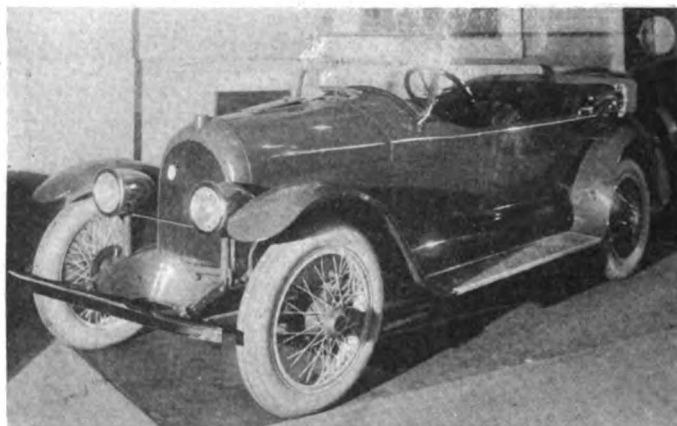
Military colors predominate in the design of the new Inter-State which has a khaki top, Twyman gray body, and Spanish brown leather upholstery. Deliveries on this model will begin about the middle of March



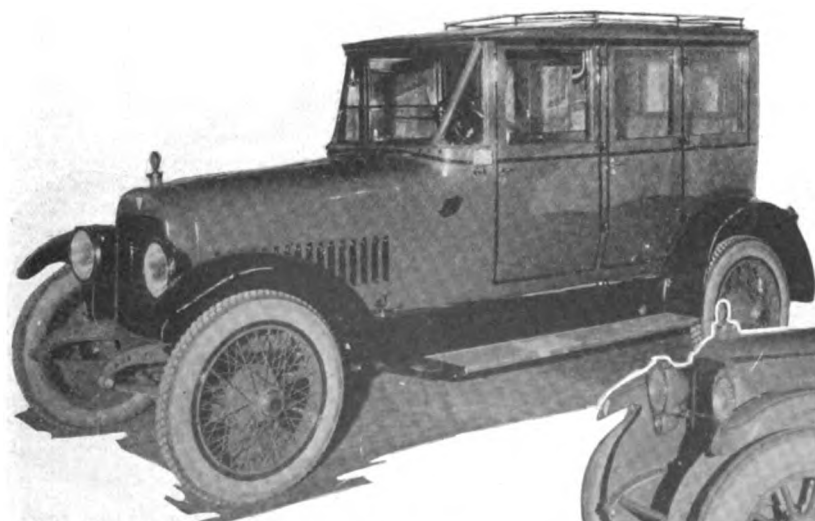
Probably this Cole tourster is turned bashfully away from the reader because it is a newcomer in the line. Its beveled edges, dark blue finish, and up-to-date appointments make it a very attractive job, selling at \$2,395, f.o.b. factory. Note the firm, warlike rear lines



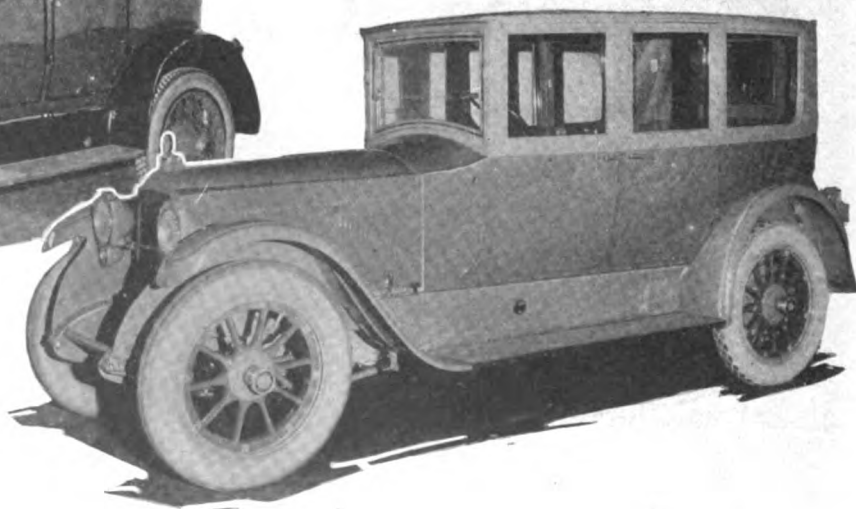
And here is the larger of the Silver-Appersons ready for immediate delivery in New York



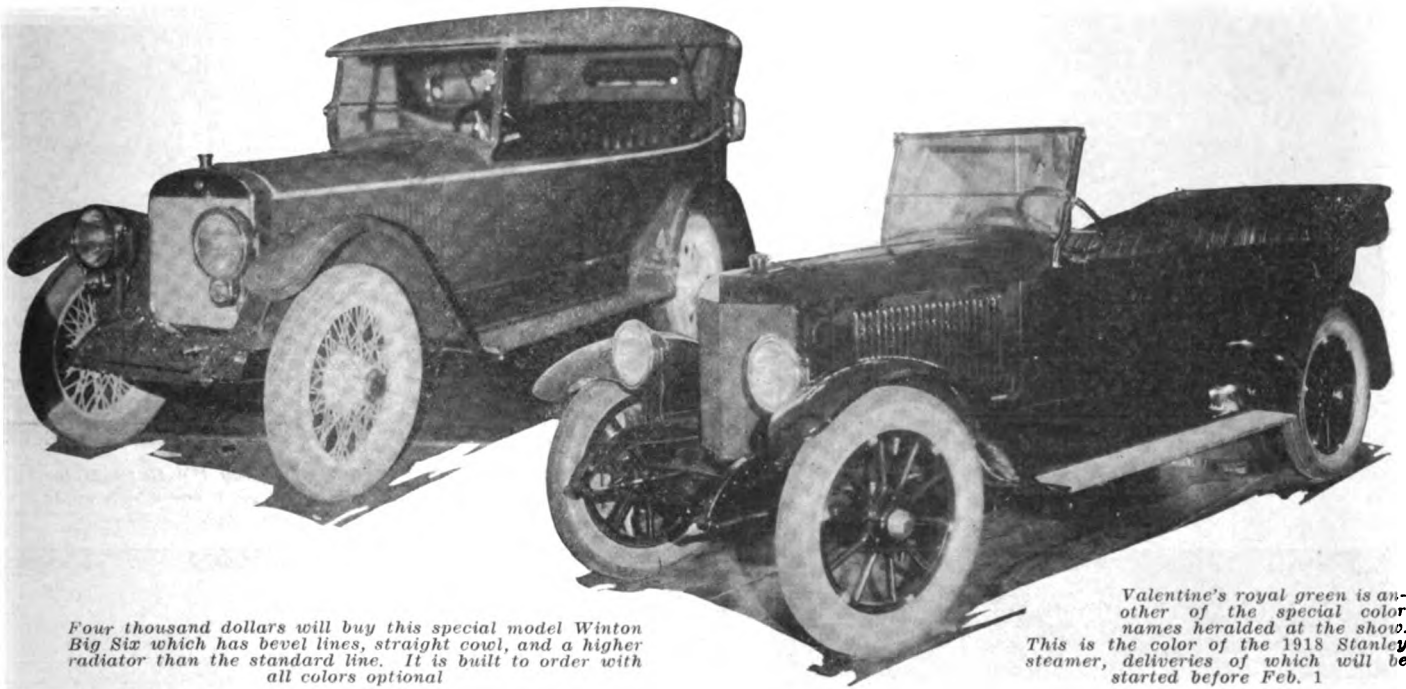
Here is the Kissel sport model with the special Silver body designed by C. T. Silver, the New York dealer. The Silver-Kissels are priced at \$2,400, including freight and wire wheels



If you want to sell this Hudson touring sedan get acquainted with the vanity case in the tonneau! Also there are curtains, pillows, foot rests, an automatic heater, and other comfort features that half sell the car

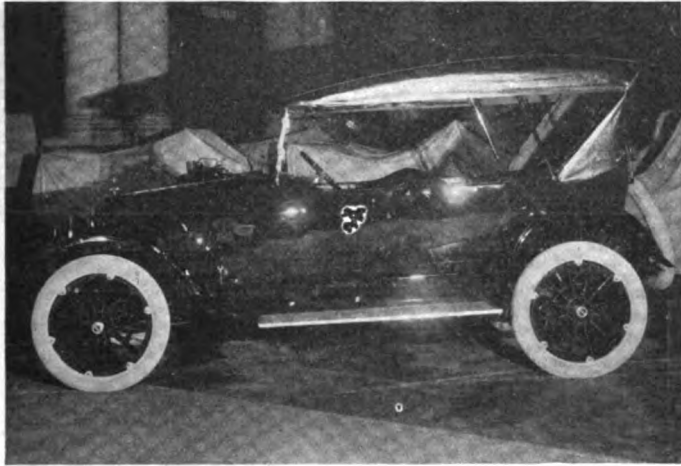


This two-tone beige colored Packard sedan is upholstered in Laidlaw material

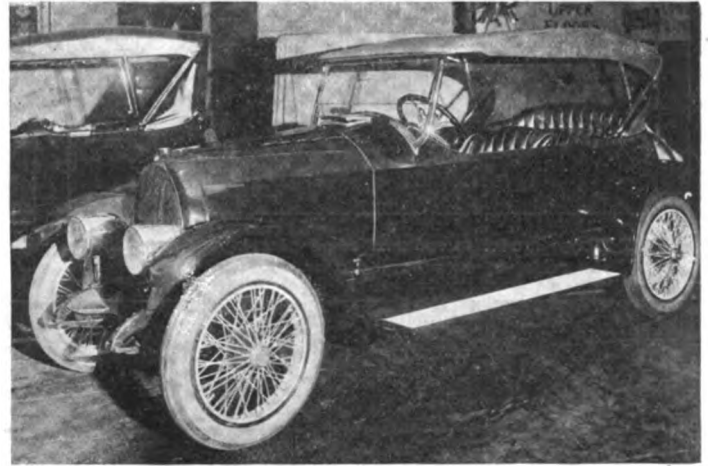


Four thousand dollars will buy this special model Winton Big Six which has bevel lines, straight cowl, and a higher radiator than the standard line. It is built to order with all colors optional

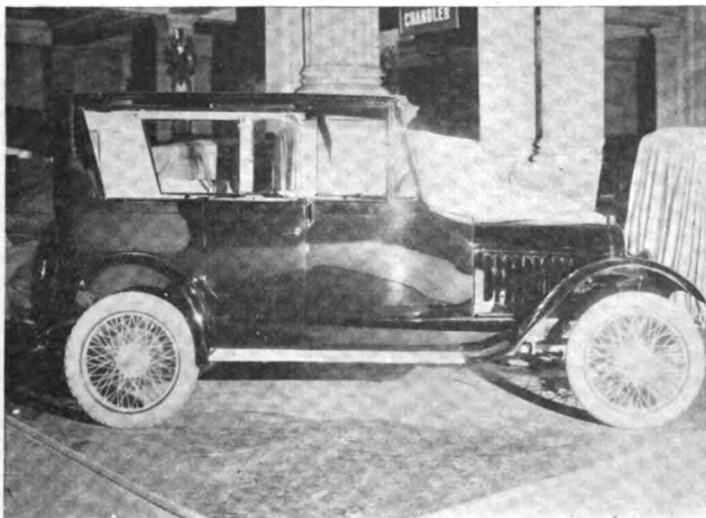
Valentine's royal green is another of the special color names heralded at the show. This is the color of the 1918 Stanley steamer, deliveries of which will be started before Feb. 1



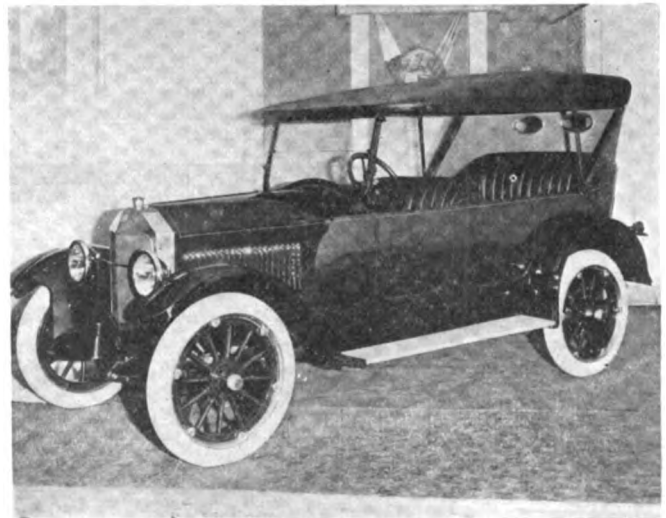
Here is the new Chevrolet 8-cylinder model with Chevrolet green body. The motor is a valve-in-head type with balanced crankshaft and flywheel; and the water pump is located at the top front part of the motor



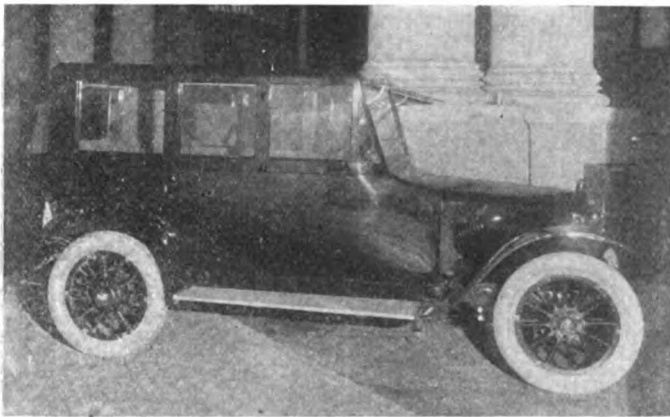
Another Silver body. There is a single wide door on the left side of the body which admits passenger to either front or rear seats. The driver's seat slides on a track, thus giving plenty of leg room



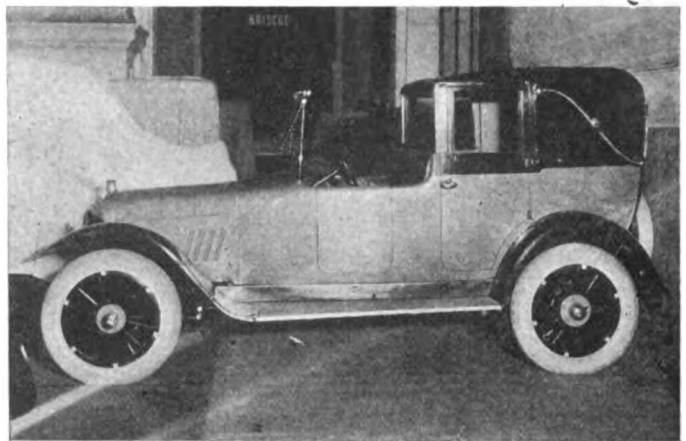
Among the line of Chalmers exhibited at the show were several smart closed body models like the one pictured above



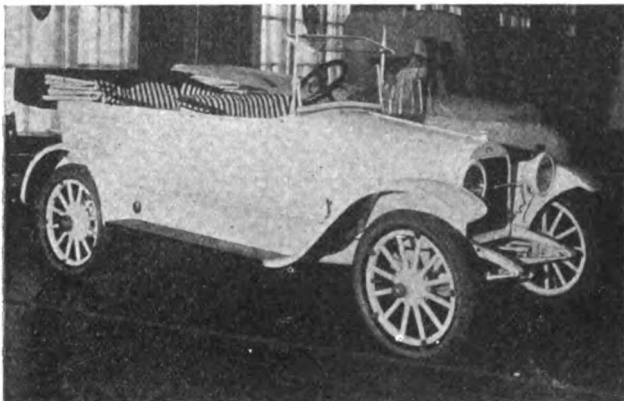
Scripps-Booth was among the many cars which had individual colors, this model being a Delft blue. It has a six-cylinder Northway motor



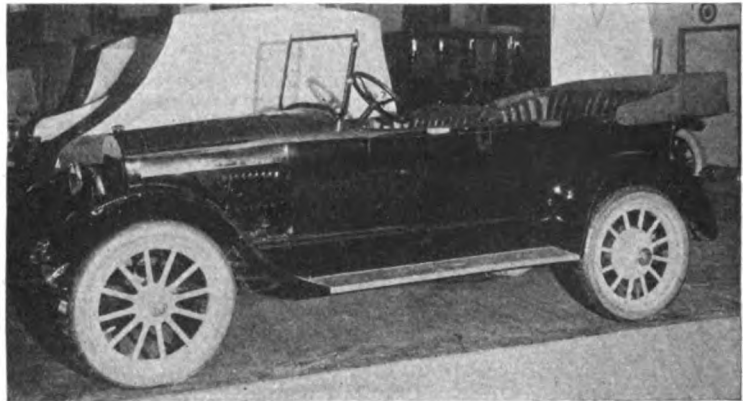
Delivery on the new Hupmobile sedan which carries the beveled edge idea into the enclosed car line will begin about the middle of July



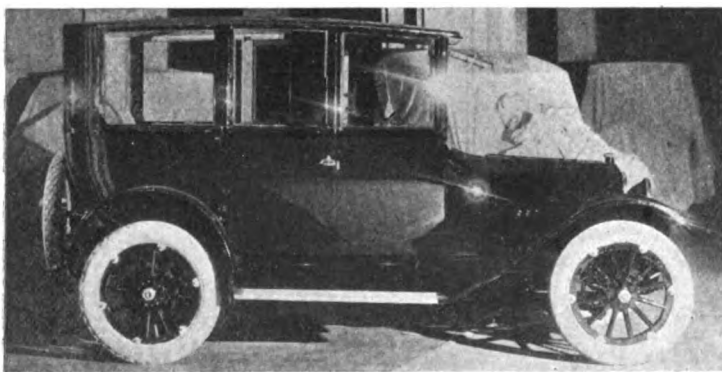
An entirely new line was exhibited by the Hupp Motor Car Co. at the show, including this town car which made an effective appearance



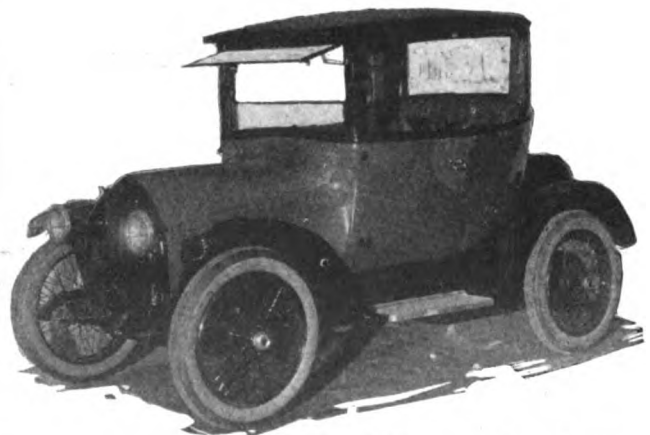
This Moore model introduced some pleasing variety into the midst of cars having a conservative finish



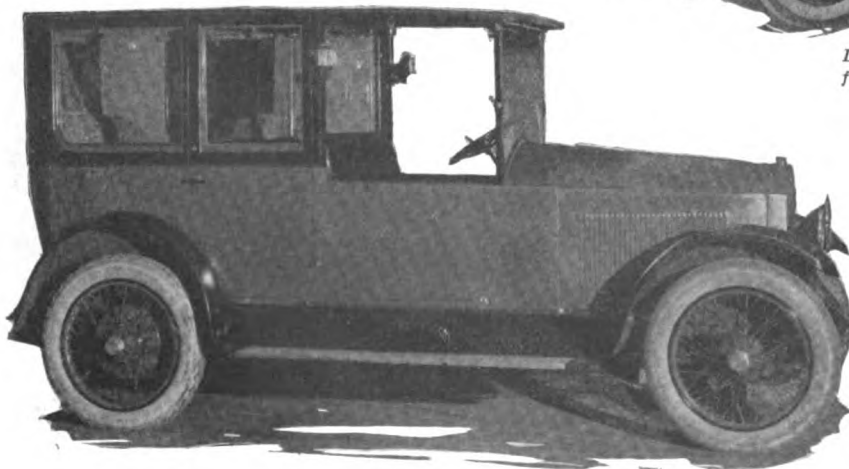
The most fastidious interior decorator would surely be satisfied with this Crow-Elkhart De Luxe model which has ten color and three upholstery options



"Baby Grand" is neither a piano nor a pet name but an old designation of a new Chevrolet chassis on which this convertible sedan is mounted



Luxurious body appointments are furnished with this Detroit electric brougham



Milburn electrics are now being built to develop 30 m.p.h. The model at the left is finished in Hungarian blue and sells for \$2,985, f.o.b. factory

Reilly Says

“The Show Needs Merchandising Atmosphere”

THE Well Known Sennett Dealer in Callawassa Gets to the Show and Says It Is, as Usual, a Good Show but That the Industry Isn't Making as Much Progress in Its Merchandising as It Is in Engineering and Production

REILLY had spent a long time coming to the show from Callawassa and was getting weary of delay. He also had stood in line some time to get a room at the hotel, and when he arrived at the show he found he had to stand in line again to buy a little five-cent war tax ticket to get through the gate.

But after he was through the gate everything was easy sailing. After meandering around and around he finally located the Sennett exhibit with its many starred service flag in the background and discovered Jim, the Sales Manager, waiting in a spirit of lonesomeness for the arrival of the old-timers, most of whom hadn't showed up as yet.

Old-timers are not very thick on Saturday; wherefore it wasn't hard to persuade the Sales Manager to leave his exhibit and wander around the floor. Curiosity as to what was upstairs eventually got the better of them and, like all able-bodied men, they rode to the top floor in the elevator and went down to the press room to smoke. There was no one in the press room but the free lunch man, so they went out and began the process of circulating around the floors and down the stairs to the point whence they started. It is a time-honored show custom.

Contact Work Undeveloped

“Jim,” said Reilly, “has it appealed to you that while this is a wonderful show and all that, one of the points that stands out is that there is a whole lot of the same old stuff and same old methods that we have seen from year to year? From an exhibition standpoint the industry doesn't seem to be making a great deal of progress. It has been devoting its time to engineering and designing and production, and all such things as that, but hasn't been developing its method of contact with the public.”

“I don't know,” replied the Sales Manager. “I hadn't thought much about it. What do you mean?”

What Other Industries Do

“Well,” explained Reilly, “it is somewhat noticeable down on the car floors, but it is especially noticeable up here on

the accessory floor. If you have ever gone to one of these exhibitions conducted by other industries you perhaps can better appreciate what I mean. When you have a furniture show or a business show or an electrical show, the whole darn thing *looks like a show*, but as you stand here and cast your eye over these accessory exhibits it seems to lack a show atmosphere. There is too much setting stuff down on counters and on the floor and simply letting it go at that. Just about the same way you would put it in a well-ordered stockroom. I was going to compare it with an implement warehouse, but I guess that's going pretty far—and I won't do it.

What a Body Man Did

“It is all right to criticise this way and say that everything is all wrong, but let's just take a look around now and see how many things we can find that have been here year after year and don't seem to have been changed a great deal. Here is a body material exhibit. This man has simply set a couple of rough jobs on the floor and hasn't done another darn thing. He might have put in a corking exhibit on how his materials are manufactured, with classy exhibits showing the progress in the production of the stuff and a number of samples of how the finished product looks and is used.

“I'll bet the thousands of people who come to this show will walk by this exhibit and never give it a second look. I presume the man's argument is that he isn't interested in the public, he wants manufacturers' business; but I don't see how he can very well explain his proposition with what he has in this space. His story, no matter to whom he told it, would be a lot more impressive if he had an exhibit such as I have outlined.

Same Old Spark Plug Display

“And here is a spark plug exhibit with plugs made up to look like cannons. That thing was here last year and I'll bet everyone who saw it last year remembers that it is old stuff. And here are these shock absorber demonstrating devices with these little dolls jumping around in miniature cars and springs that release and are checked by the

shock absorber. Why, Jim, these things have been here ever since I have been coming to these shows, and the exhibits have been arranged in just about the same old way.

“I can't attempt offhand to tell you what each one of these people should do to bring their exhibits up to a real exhibition plane, but it seems to me it ought to be possible for about 3000 per cent improvement to be made in almost all of them.

This Must Mean Klaxon

“Now, look at this one here. Here is a horn exhibit and it begins to approach the ideal I have in mind. Instead of the horns being stuck up on a common, ordinary counter, they have been placed on a table with an orange cover against which the black shows off beautifully. The man who designed this job evidently knew something about colors, for it is a fundamental of display that black and orange is one of the best combinations that can be made. And then in the back of his exhibit he has put furniture with cushions and all that sort of stuff. Why, Jim, if every one of the exhibitors went as far as this man has gone this show would be so far ahead of the shows of other years that it would be talked of all over the United States.”

“Yes, I think probably you're right,” was the Sales Manager's comment.

Money Gone to Waste

“And then here's another one,” continued Reilly, “a brake lining exhibit. All this man has done is to take a couple of rolls of brake lining and stretch it up into cone-shaped piles. Perhaps he has nothing to show except his processes of manufacture, but it seems to me he might have shown those and also had exhibits pointing out why his brake lining is better than types that are not so well made. He has paid good money for this space and it seems to me he is letting a lot of it go to waste.

“And look at these die castings! Simply a pile of castings such as you might see on a workman's bench in any factory. And here are storage batteries galore, simply set up in rows on counters. They aren't attractive looking things in the first place and nothing has

been done to make the exhibits attractive.

"Now here is another one, Jim, that begins to look like something—this exhibit of tire gages and other small products. The man has dressed up his space, has arranged it with an artistic merchandising eye, has put a rug on the floor, has installed some furniture and the men in the exhibit are in evening dress. This man apparently realizes that he is in the show for the purpose of presenting his product to the public in the best light.

Sounds Like Stewart-Warner

"Then here is this exhibit of vacuum tanks and spark plugs and other things. A lot of money has been spent on this exhibit, but I bet the manufacturer makes a bigger net profit every year than a lot of these fellows who simply dump their goods into their exhibits and let it go at that.

"Here is one, Jim, that comes very near taking the leather medal. All this man has is two burlap bags full of hair. It looks to me like Saturday night in the barber shop. The only thing that impresses me is that all of his customers must have been colored gentlemen and about half of them must have been about 70 years old, because one bag is full of snow-white kinky hair, while the other is full of the well-known jet-black kink.

"And here are all these electrical devices and spark plugs in their display boards still spitting away sparks in the same old-fashioned way they have been spitting since the automobile industry was a pup—"

"I know, Reilly," expostulated Jim, "but what else can a lot of people do than show their goods this way? Isn't it—"

There Is a Way

"As I told you before," retorted Reilly, "I can't sit down here and lay out an exhibit to-night for everybody on this floor, but I bet you forty cents I could take any one of them and in fifteen or twenty minutes—with a knowledge of the product—lay out an exhibit of some kind that would be so far ahead of these we are looking at that there would not be any comparison. Even if they are going to show these spitting plugs and electrical devices and all those things, why can't they inject a little atmosphere into their exhibits? Why do we find this atmosphere in other shows and not in the automobile show? Why do we find a couple of these people down here with good color combinations, bits of attractive furniture, and so forth, in their exhibits, and all the rest of the people haven't done a god darned thing?

"Just take a look around at some of the exhibits that are put on by people who really may be said to come from other trades. Here is a carbon man. He probably has taken part in electrical expositions. His exhibit is a mighty attractive display of a product that is rather difficult to show.

"And here is a company that makes artistic metal devices. It has had experience in business shows and the ex-

positions of other highly developed trades. Just see how attractively its goods are set up.

Another Good Idea

"And here is a manufacturers' representative with a good idea and he very nicely offsets the contention of those who say they are catering to manufacturers and not to the general public. This man sells to jobbers only. The front of his exhibit is fairly attractive, but the inside is much more attractive. Down through the center of one side he has an aisle with display fixtures, making the interior of his exhibit a regular store into which he can take prospective buyers. This same idea could be used with every product whose exhibitor advances the statement that he wants to reach the quantity buyers and not the public. But above all things, an exhibit should be made attractive or else I consider it a reflection upon the buyer of the space.

"Quite a number of these people have nice showcases and fixtures, but many of them haven't done anything except to set these cases down in the middle of a barren space. Supposing it did ruin a rug or break a chair by putting them into the exhibit? No result is ever achieved without some expense, and so long as an exhibitor is willing to spend money for space, why shouldn't he spend a little bit more and get the greatest value out of the space?

"And supposing a prospect comes into the exhibit and you want to know whether he is on your list. How can you get immediate information unless you have moved part of the office into the show space and provided facilities for getting in touch with your office records? Some exhibitors have done this and some haven't."

"Maybe there is a show rule against it," suggested Jim.

A Show Rule

"If there is, it's what I would call a fool rule," snapped Reilly. "It's all right to try to get uniformity in a show and to prevent certain exhibitors from monopolizing attention with bright lights, enormous signs and all that sort of thing, but what earthly sense is there in putting on a national display function and then preventing a man from giving more than a five per cent display?

"We've had this same thing up in our own show in Callawassa, and we finally arrived at the agreement that it was foolish to prevent a man putting palms and ferns and furniture into an exhibit if he wanted to go to that expense, and that's why our show is one of the best looking shows in the United States every year."

"Yes, that's right," said Jim.

"An exhibit of cars," Reilly added, "always looks better than an exhibit of storage batteries because the cars are a more attractive looking product, even if nothing is done to the exhibit, but in my mind there is a whole lot of merchandising that could be put into most of these car exhibits also.

"I think this only bears out what I have said many times before, which is,

that the progress of our industry has been along engineering and production lines and merchandising has lagged behind. We have always had a demand bigger than our supply; we haven't had to sell things. People have been glad to get any old kind of car they could get so long as it would run, and we have lightly talked of the time when cars would have to be sold and not bought. Perhaps you don't realize it, but that period has dropped on us overnight, and all of a sudden a lot of us find that we aren't selling as much as we used to.

"A better expression of the situation would be to say that we never have done much of any selling at all and the present condition is due to the fact that people aren't buying as much as they used to. You can look around in the industry and find manufacturers and dealers who are good merchandisers who are to-day doing almost as much business as they ever did, and I still maintain that a dealer and a factory can sell all the cars that they make during this war period if they sell them instead of waiting for people to come in and demand them.

How About This?

"What do you suppose the cash register business would amount to if the cash register companies waited for all of the little delicatessen store people and bootblacks to come in and demand cash registers? The business would go to pieces in twenty-four hours. The truth is that the cash register company goes out and combs the country with a fine-tooth comb—and its production is enormous as a result."

They were just then passing the exhibit of one of the oldest and most aristocratic cars in the industry and a frown crossed the faces of both men as they heard a salesman say "pleasure car."

"Gosh," said Reilly, "I thought we had heard the last of that.

"And to go a bit farther with the comparison," Reilly resumed. "Go into a business show and look at a cash register exhibit and see if it looks any different from the exhibits in our automobile show. How many of us would be using dictaphones if the dictaphone company waited for us to come in and demand its goods? How much life insurance would be sold if life insurance people put their policies on a platter and waited for us to come around and pick them up?"

"I don't think I can disagree with you even for the sake of argument," said Jim. "And I guess I'll go down and see if there isn't something we can do to that exhibit of ours."

And in Conclusion

"I suppose a lot of people will say that all this criticism is unjustified; that goods of this kind can't be attractively displayed; that show rules prevent this and prevent that, and that the expense wouldn't justify the results. To all of which I reply that a one hundred per cent merchandising exhibit is nothing except the outward evidence of inherent one hundred per cent merchandising principles—and if we have the principles the evidence can't help but show itself."

Good Display Ideas

at the

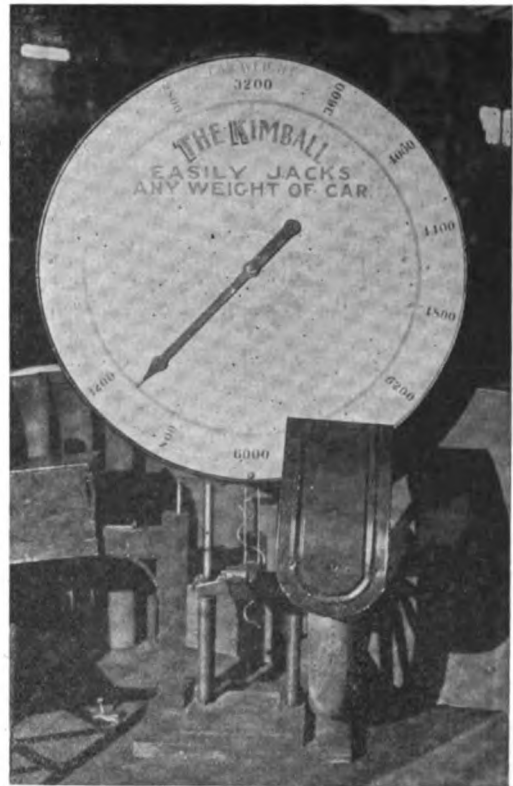
New York Show

IN the great array of exhibits at the New York show are many points of merchandising merit. There are many exhibits in which there is little of value from a display standpoint, but on this and the two following pages are some of the points that appeal to the show visitor.

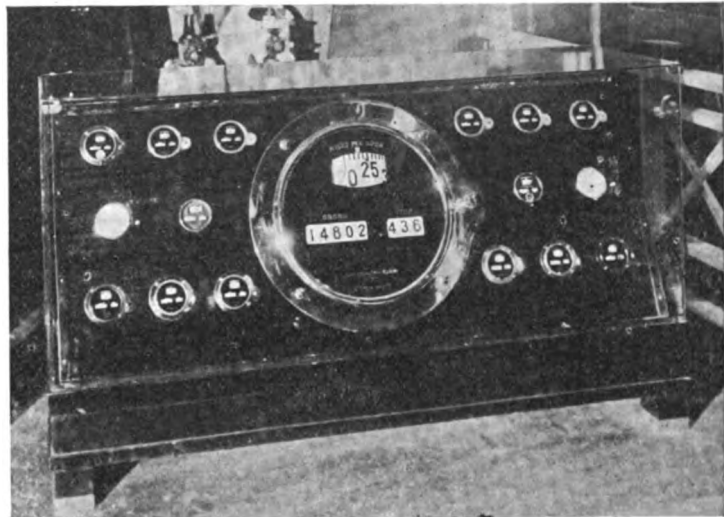
The point made on these pages—and in the Reilly story on the preceding pages—is that the man who has paid good money for show space should spend a little more money—and effort—and show his goods to the best possible advantage. He should get good fixtures, use furniture where necessary, and make his merchandise attractive and instructive to show visitors.



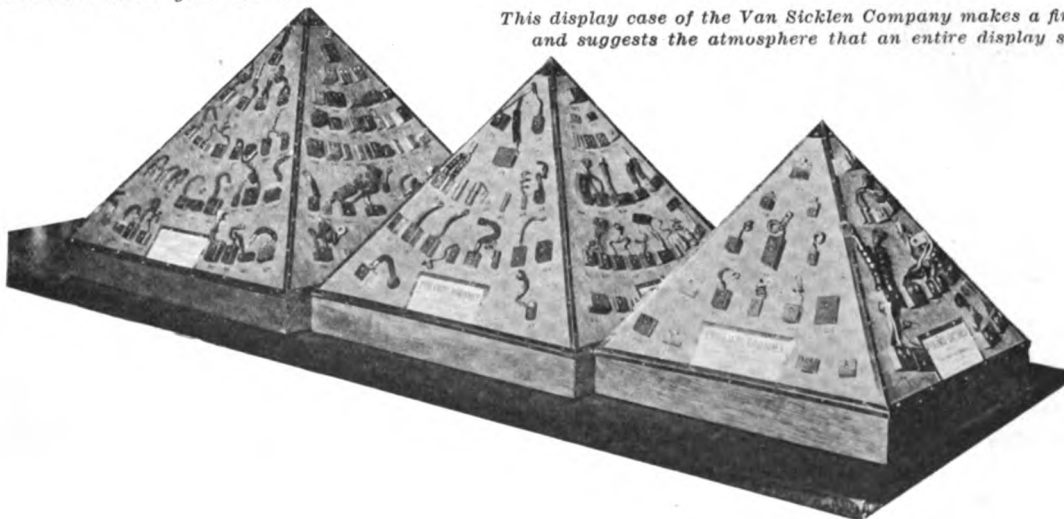
The Harrison Thermostatic Control had a display device that brought crowds to see how the shutters shut when the motor grew too cold



The Kimball Jack provided a device whereby visitors could turn the handle of the jack and see how easily a big weight could be lifted



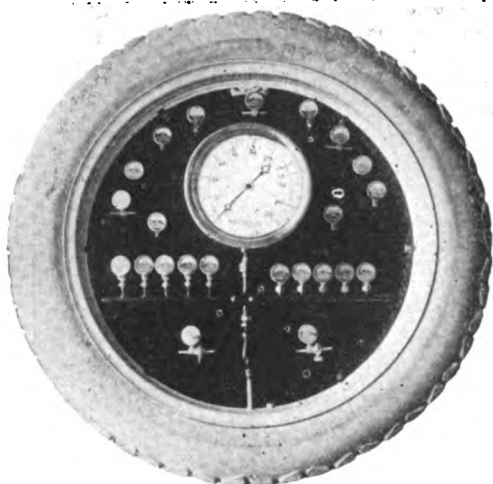
This display case of the Van Sicklen Company makes a fine center piece and suggests the atmosphere that an entire display should have



These Pyramid Brushes are not easy to make into an attractive display, but see how well the job was done

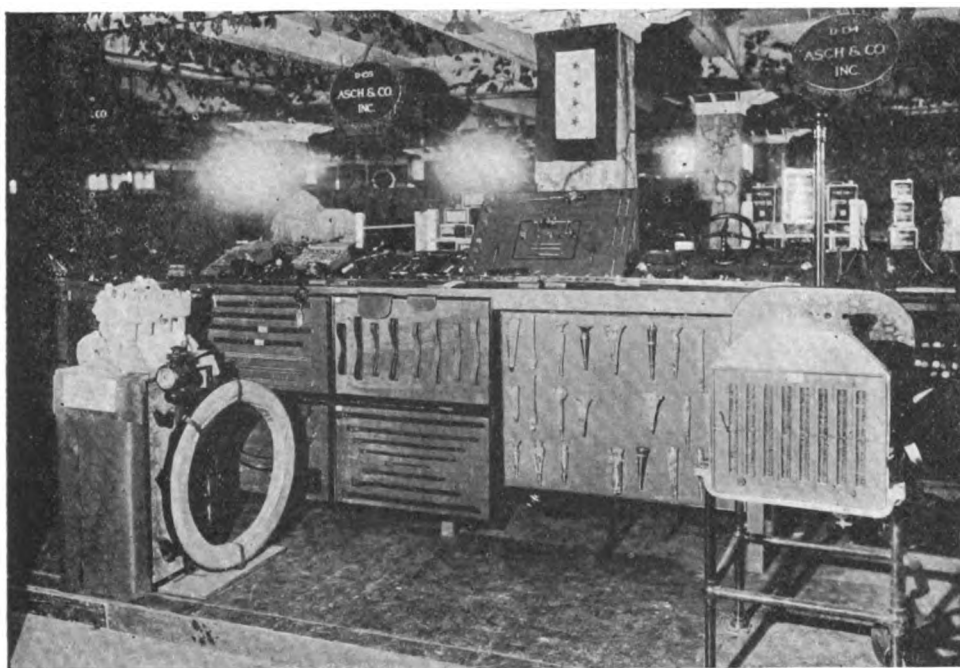
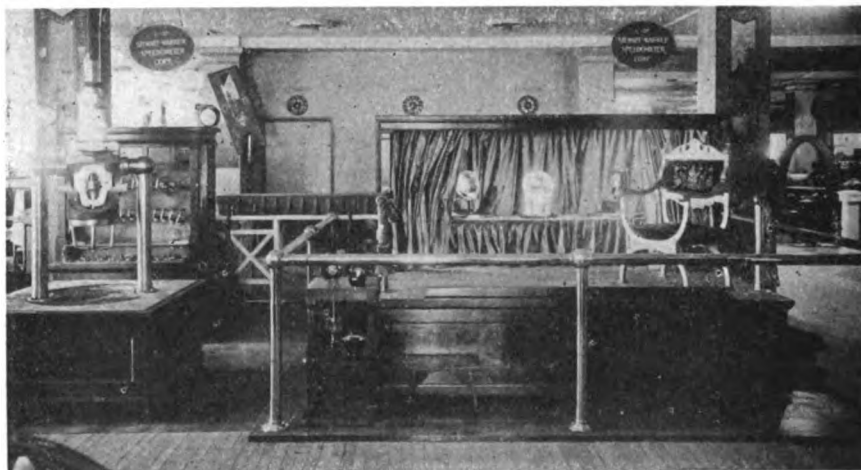
The World May Beat a Path to You

These are some of the good display ideas at the New York Show

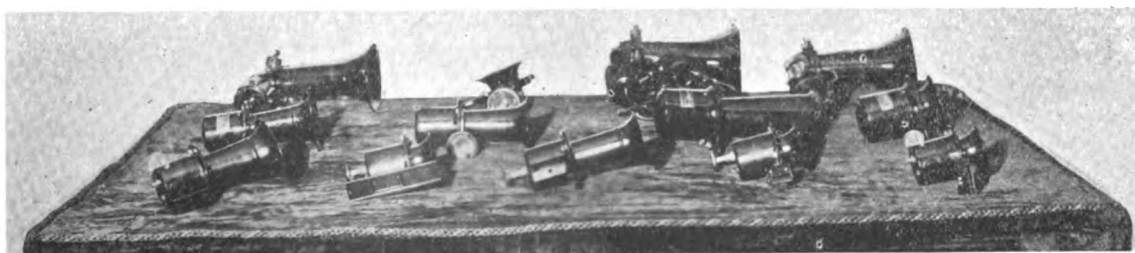


These Pressurite gages are for tires—so the exhibitor displayed them inside a tire. Quite clever, wasn't it? It attracted attention

Stewart - Warner demonstrated its wares in a scarlet velvet setting with a throne whereon sat a beautiful young woman. This exhibit is the most elaborate display and the greatest winner of attention at the show



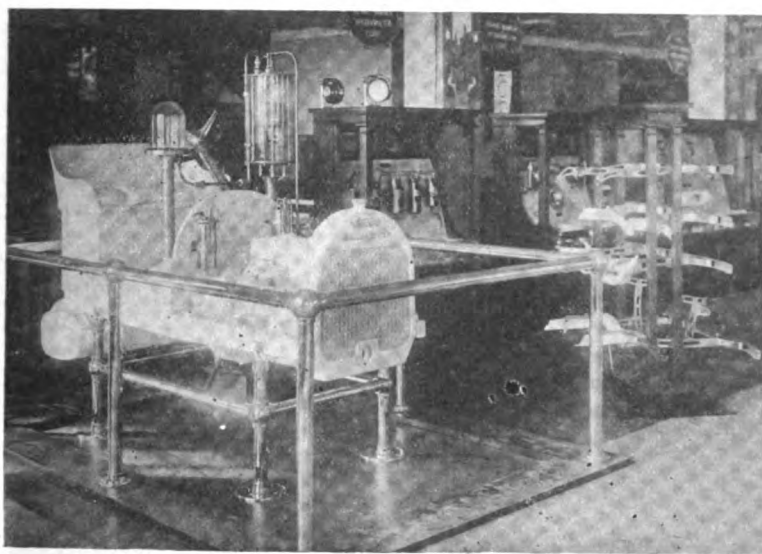
Asch & Co. did a rather diplomatic thing. It arranged its exhibit so it looks well from the front and would attract the attention of the passerby; but inasmuch as its business is with jobbers it has a regular little store in back of the counter in the foreground. Casual show-goers can walk by and see all they care to see, but the jobber can go into the store and transact business just as well as though he were in Asch's place of business. It is an excellent combination of a display for the interested and the uninterested show visitor



Klaxon set its jet black horns on a draped table with an orange cover where they stood out in fine style. Back of the table was wicker furniture with cushions and cosy corners. It is one of the best exhibits in the show

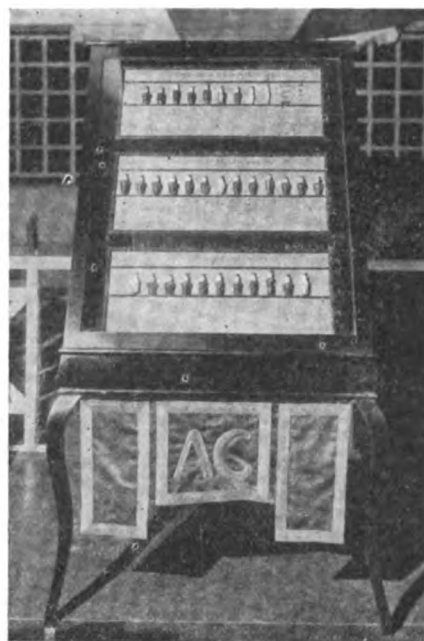
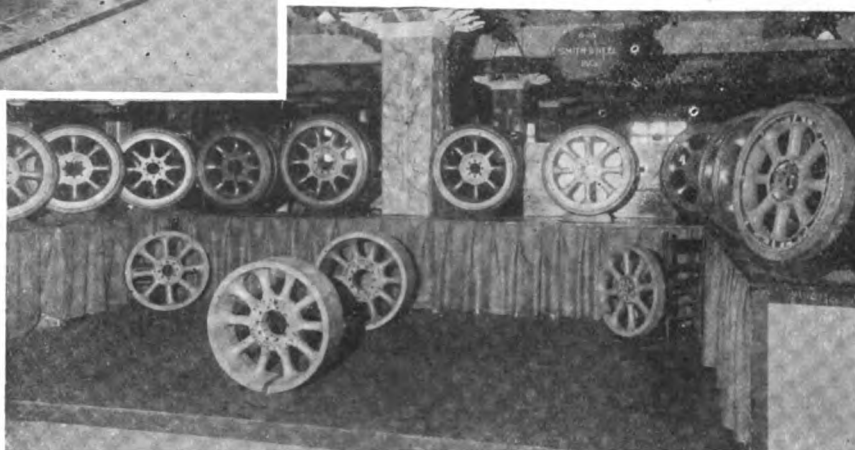
But Good Displays Are Surest

And here are some displays that make folks stop and look



Stewart-Warner demonstrated the working of its vacuum tank with this display. The red liquid in the glass tank bubbled and boiled and there was always a crowd watching the "insides" of something that is a mystery to many car drivers

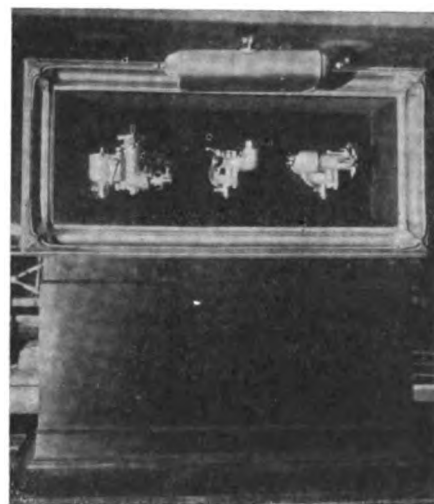
Wheels are not highly ornamental, but the Smith people did well with their wares. The display is neat, not crowded, and one gets from it the idea of strength and solidity. This display is among the good ones every year



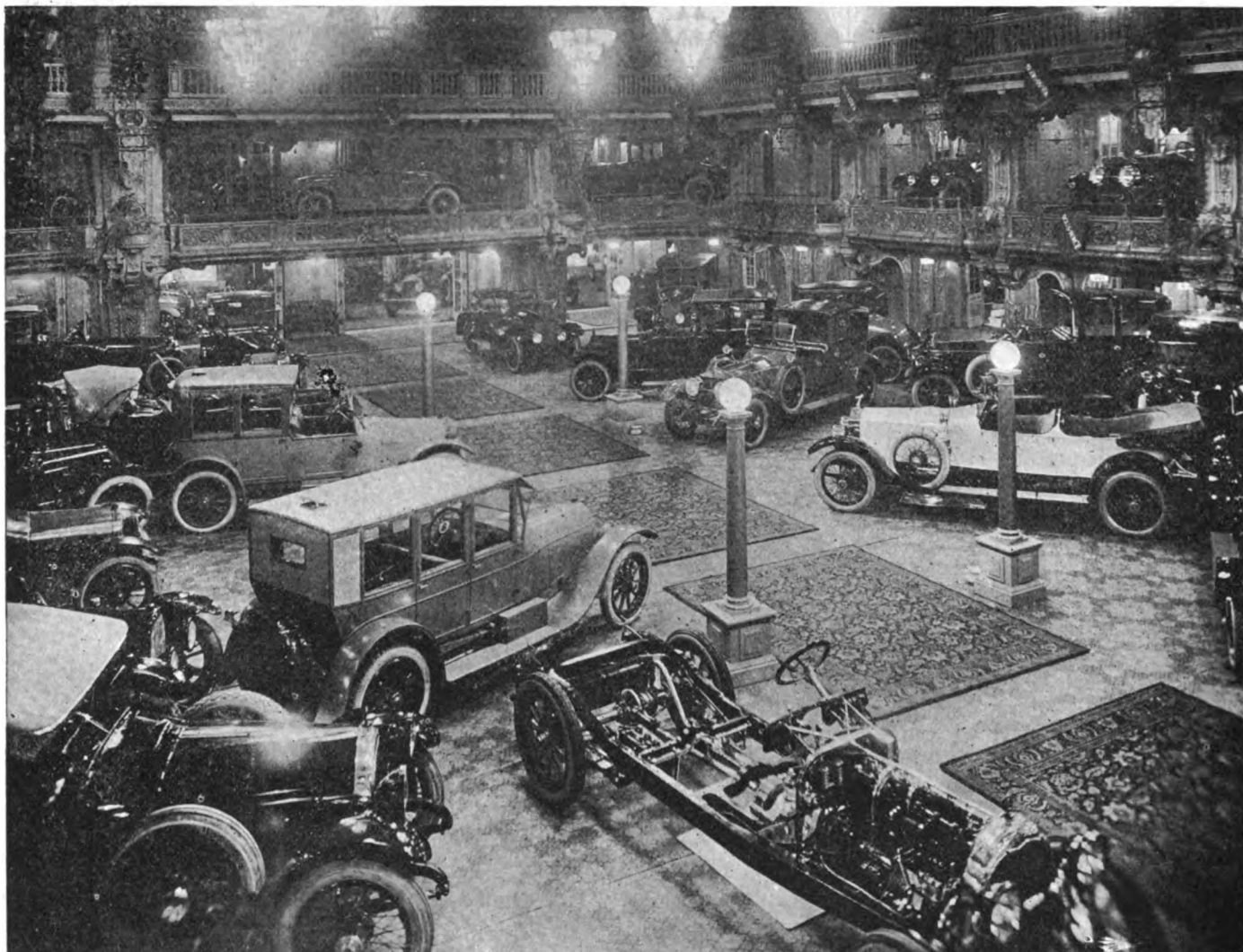
For displaying spark plugs this fixture for the A-C line is excellent. It shows the variety of the line and the fixture is most attractive



The Warner Lenz display case serves an ornamental and useful purpose. It is a better looking display case than the picture indicates. The space in the exhibit, however, could have carried more of the same atmosphere



These carburetors were given an atmospheric setting in a shadow box with strong light from the reflector



Here is a typical view of the sumptuous setting in which the luxury cars were exhibited at the Astor Salon

Setting Styles in Body Design

*Annual Salon at the Astor Reveals a Wealth
of Luxurious Newness*

NEW YORK, Jan. 2—Striking the keynote in body design from a fashionable angle, the fourteenth annual automobile salon, which is now running at the Hotel Astor, bears out its traditions of former years. The salon is always a body show, and although war is interfering with the presence of some of the customary European exhibitors, the salon still maintains its international character.

Some of the notes which will be made by an observer of the bodies at the salon are the improvement of the convertible and collapsible types, the dropping off of the divided front seat for touring cars, the better arrangement of control features, and the strong tendency towards the straight line body with the beveled edge. These lines are noticeable not

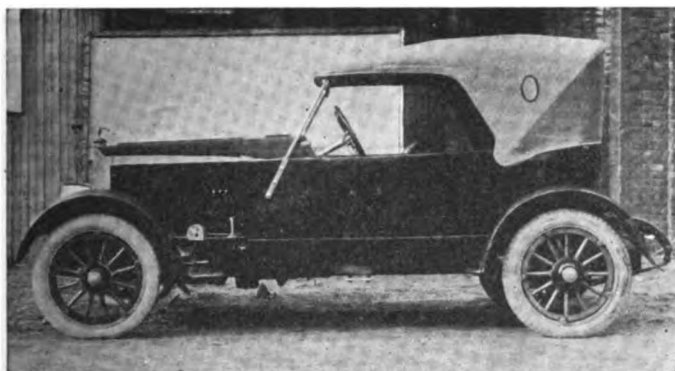
only on the open but also on the closed cars, and on both these types the tendency toward building the body to suit the physical requirements of the user is quite noticeable.

There is a four-passenger Murray car all in aluminum with a decidedly angular side and fender line built to suit the purchaser, who happens to be the son-in-law of Andrew Carnegie. Another tailor-made body is shown at the Brewster booth, where there is a sedan for the personal use of the president of the company. This is a square type with a flat roof relieved by a sloping front line. It is trimmed with cane and spruce, the body weighing only 785 lb., or 400 lb. less than the average Brewster-Knight sedan body.

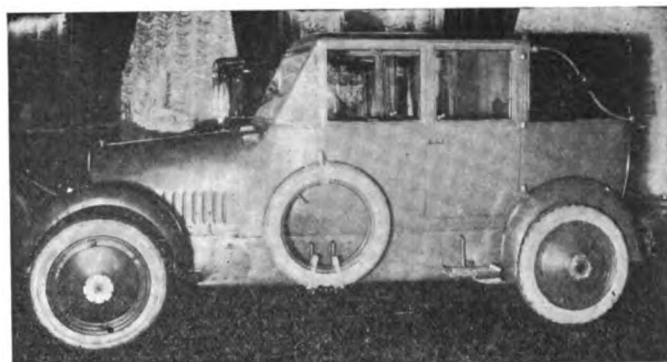
The Biddle company has its new

Duesenberg engine-equipped car on the floor. With the exception of some strengthened parts to take care of the new engine, the 122-in. wheelbase chassis is the same.

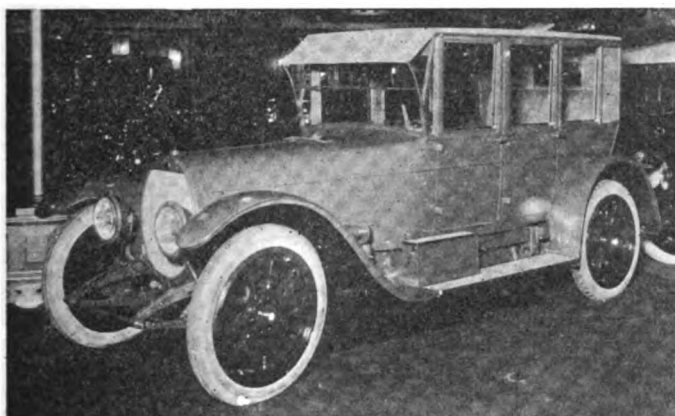
The Mercury car, made by Mercury Cars, Inc., Hollis, L. I., is shown, and is a new product selling from \$2,750 to \$2,950 in open models and \$3,600 to \$3,900 in closed models. White, Locomobile and Simplex show complete lines, as usual, and the Fageol also has one of the Hall-Scott aviation engine equipped cars on the floor selling for \$13,000. Cunningham, Lancia, Murray and Rolls-Royce all show town and convertible town bodies which are typical of the high narrow design which seems to be nearly universal for the formal type of city vehicle.



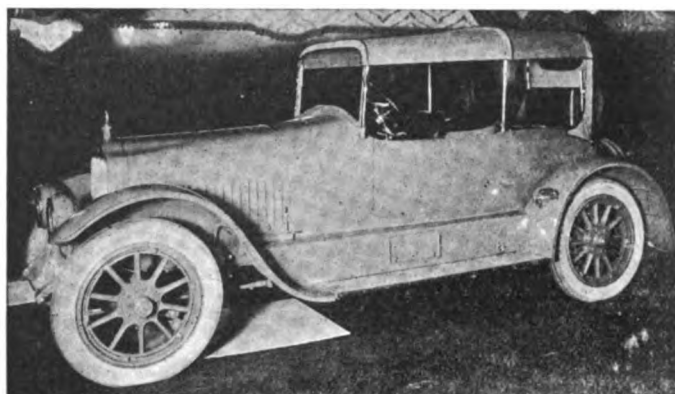
A four-passenger 50-hp. Mercury car, exhibited by the Mercury Cars, Inc., is finished in Walton body gray. Note the concealed tire holder at the rear. Sells for \$2,950.



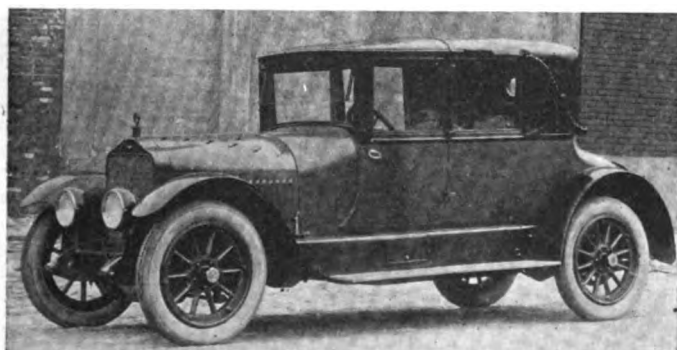
This Daniels eight shown by the A. Elliott Ranney Co. is a military model landaulet-sedan designed especially for war service and is finished in U. S. olive drab. Small steps take the place of runningboards. The price is \$5,200.



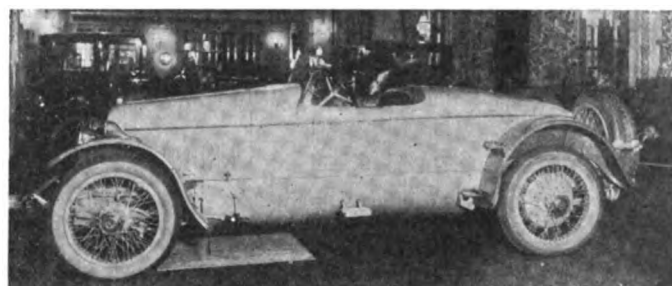
Another military car exhibited by Brewster & Co. is finished in khaki color. The interior is wholly of natural ash with khaki upholstery and rattan door panels. Priced at \$8,400.



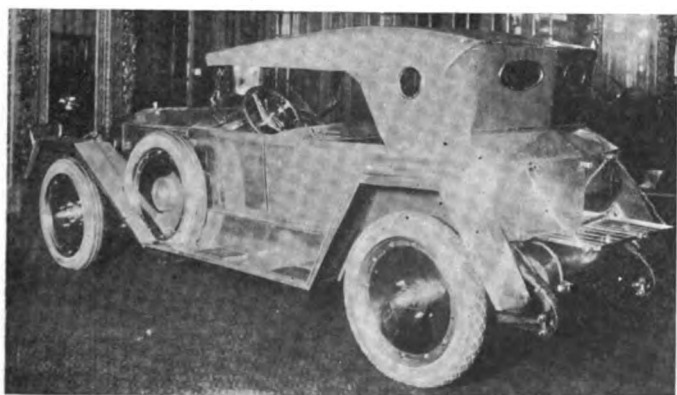
A White special roadster for three passengers exhibited by the Rubay Body Co. is finished in pigskin color and has a new disappearing top, the frame of which telescopes into the body. There is a folding flush rear seat. Sells for \$6,800.



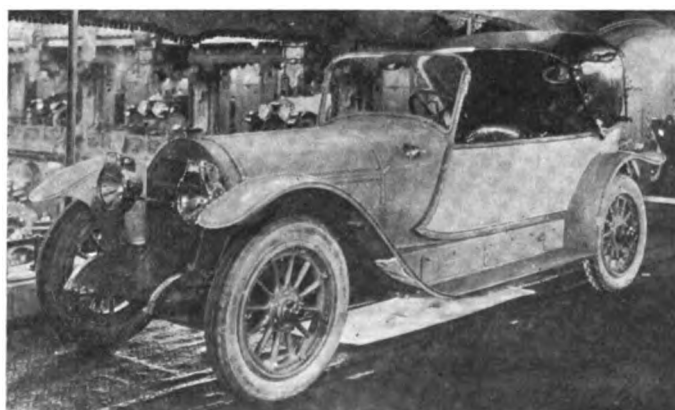
Here is a White with Rubay cabriolet—Blarritz body finished in White special gray and exhibited by the Rubay Body Co. It sells for \$6,900.



A Cunningham eight with runabout body is shown by John G. Dale. It is finished in French brown and sells for \$4,800.



The Murray Neator Car Co. has this special four-passenger car. The body is polished aluminum with a leather top. The steel disc wheels are made by the Detroit Steel Products Co. The price is \$6,000.



A four-passenger Locomobile shown by the Rubay Body Co. is finished in French gray with cane panels. Sells at \$6,750.

A Department of

BETTER MECHANICS

No. 51

Installation of Atwater Kent Ignition System Type K-2 on Ford Cars

BEFORE starting the installation of this system on the Ford, the following bill of material should be checked through to see that everything required is at hand:

OUTFIT INCLUDES

- 1—Four cylinder "K-2" Unisparker mounted on special gear-cover to fit in place of standard Ford gear-cover. A
- 2—One spiral drive gear. B
- 3—One Atwater Kent coil with switch complete. C
- 4—Flexible double conductor cable between Unisparker and coil. This is attached to Unisparker when shipped. D
- 5—Two cotter pins for pulley. E
- 6—Four screws for attaching coil to dash. F
- 7—One special socket wrench. G
- 8—Complete direction sheet.

MATERIAL REQUIRED

High grade secondary wire having an outside diameter not exceeding 5/16 in.—11 ft.

Flexible stranded primary wire—if car is roadster, 15 ft.; if touring car, 25 ft.

Six cells, dry battery (a six-volt storage battery may be used if desired).

TOOLS REQUIRED

Screw-driver, pliers, monkey-wrench, hack-saw.

THE INSTALLATION

1—Completely remove the Ford coil box and all ignition wiring.

2—Remove the radiator as follows:

(a) Drain off circulating water.

(b) Remove the right head-lamp when facing the radiator.

(c) Unbolt upper water connection and loosen hose connection on the side of the

motor, so as to leave both sections of hose connected to the radiator. It is easier to unbolt the water connection flange than to remove and replace the upper hose connection.

(d) Loosen brace-rod check-nut at dash and unscrew rod from the radiator.

(e) Remove nuts from the feet of the radiator and the radiator may be lifted off.

3—Remove the fan and fan bracket and cut off lug as shown in Fig. 3.

4—Remove the adjusting screw and lock-nut from present gear-cover and place the same in the gear-cover furnished with outfit. See 4, Fig. 5.

5—Remove the commutator by taking off the nut, washer and pin, sliding off the contact arm and commutator.

6—Remove cotter pins from pin in fan pulley on the crankshaft (see Fig. 2) and drive out the pin which runs clear through the shaft. This pulley must be moved forward on the crankshaft about 1/2 in. in order to set the new gear-cover

in place, after which it is moved back to its original position, new cotter pins being provided in case the original ones are damaged in removing.

7—Remove the gear-cover, using the special socket-wrench provided with the outfit, for taking out the bolts which are next to the crankshaft.

8—Remove the semicircular piece of felt from the groove in the Ford gear-cover where it fits over the crankshaft and replace in a new gear-cover furnished with outfit.

9—Place the spiral gear of the Atwater Kent system on the camshaft in place formerly occupied by the commutator and set up tight, applying plenty of grease to the teeth of the spiral gear.

10—Be sure that the paper gasket used between the old gear-cover and the crankcase is in good condition and is carefully transferred to the new installation.

11—Place the new gear-cover complete with the Unisparker in position on the motor, sliding it into space, as shown in Fig. 4.

After it is placed in position insert the two end bolts, marked No. 5 (Fig. 5), also screw in the fan bracket bolt No. 3 (Fig. 5), thus obtaining the proper alignment of the gear-cover, after which the other bolts may be set up.

12—The fan pulley on the crankshaft should next be set back into position, inserting the pin and fastening this in turn with the two cotter pins included with the outfit.

13—Remove the spark plug in cylinder No. 1 next to the radiator.

14—Bring piston in No. 1 cylinder up exactly to high dead center at top of compression stroke.



Fig. 1—Type K-2 Ford Outfit as Unpacked

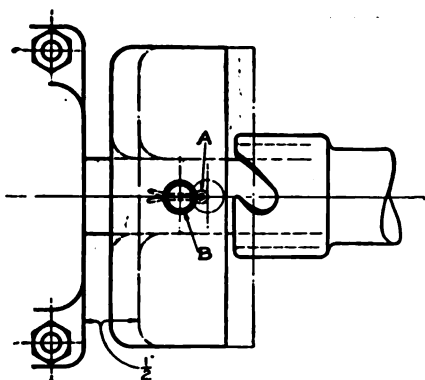


Fig. 2—Pulley moved forward temporarily to facilitate installation

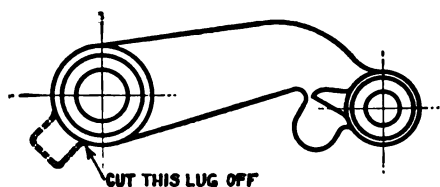


Fig. 3—Fan bracket, showing lug to be cut off

TIMING THE ENGINE

1—Set the clamp under the Unisparker so that the Unisparker may be turned in its bearing. For accurate setting it should be clamped just tight enough to turn fairly hard, then grasping the Unisparker firmly turn it slowly and steadily in the opposite direction to the hands of a clock until a click is heard. Stop exactly at the point where the click was heard and lock the Unisparker fast by tightening up the clamp bolt.

2—Take off the distributor cap.

3—Note the direction in which the distributor block on the upper part of the distributor points and replace the cover. The terminal to which it points will connect to the spark plug in cylinder

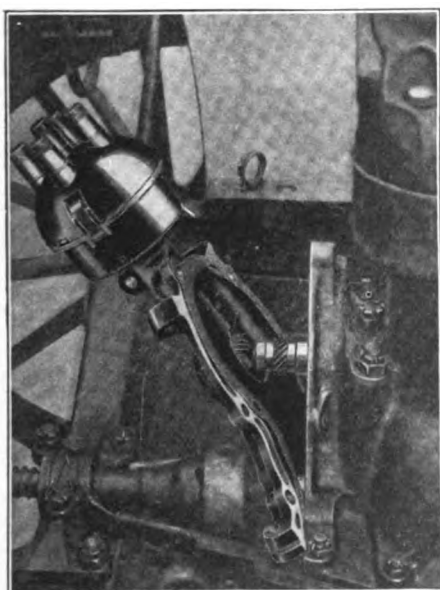


Fig. 4—New gear cover being placed in position. Note that the fan pulley is moved forward about one-half inch

der No. 1 and the spark will be timed to occur exactly on "center." The diagram (Fig. 6) shows the relation of the distributor terminals to the spark plugs, and in applying this to your installation, the distributor terminal to which the distributor block points will always be No. 1 and will connect to cylinder No. 1. The other terminals will connect to the remainder of the spark plugs in accordance with the order of firing of the Ford motor (which is 1, 2, 4, 3), the other distributor terminals connecting to these plugs in rotation.

If spark timing is accurately done according to the above instructions, the timing will be correct for the maximum power, speed and flexibility of the engine.

Once set, the spark is automatically controlled by the governing device in the base of the Unisparker, and the spark is timed with automatic precision for any motor speed. It is always retarded automatically for slow starting and for hill climbing, and automatically advanced for any speed of which the engine is capable. Once properly timed, it should require no further attention.

Before proceeding with the wiring, complete the mechanical installation as follows:

1—Replace the greater cap taken from the old gear-cover.

2—Replace the fan and bracket on the new gear-cover, making sure that the grease cup on the fan is full of grease.

3—Replace the radiator as follows:

(a) Set the radiator in position.

(b) Connect the upper and lower water coupling. (Note that the gasket is in good condition.)

(c) Bolt the radiator in place, taking care not to set up springs under the bolts too tightly.

(d) Replace the cotter pins in the lock-nuts.

(e) Connect the brace-rod from the dash to the radiator, screwing it first into the radiator and then tightening up the lock-nut at the dash.

4—Replace the lamp.

5—Replace the spark plug in No. 1 cylinder.

6—Mount the Atwater Kent coil on the center of the dash so that the round head of the brace-rod fits in space counter-bored for it on the back of the coil. The necessary screws for mounting the coil on the dash are provided with the outfit. The position of the coil is shown in Fig. 10. Mount the coil.

WIRING PRIMARY CABLE FROM INTERRUPTER TO COIL

Run the black primary cable which is connected to the interrupter up along the brace-rod, fastening it thereto with a few turns of adhesive tape, and thence, through one of the holes left by the original coil wires to the coil, where the two wires are connected to the two binding posts at one end of the coil marked "Int." See Fig. 6.

SECONDARY GROUND

From the bottom of the coil a wire should be run from the post marked

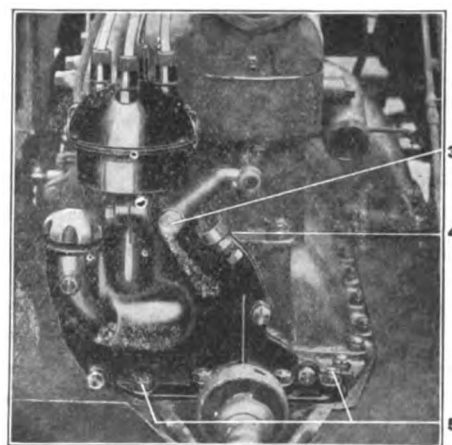


Fig. 5—Type K-2 Unisparker in position on Ford motor

"GRD" through a hole in the dash to one of the bolts fastening the steering column to the dash. In making this connection to this bolt, the wire should be bared for about $\frac{1}{2}$ in., bent into a U shape and inserted between dash and washer. Do not wrap the wire around the bolt several times.

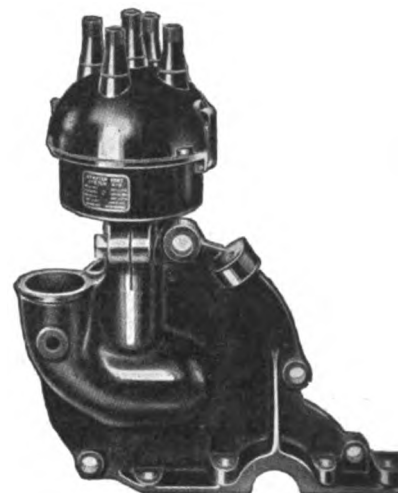
SECONDARY WIRE FROM COIL TO CENTER OF DISTRIBUTER

The main high-tension or secondary terminal of the coil is protected with an insulating cover which unscrews to enable connection to be made at the binding post.

Unscrew this cover and slip it down over the secondary wire. Make the connection to the secondary binding-post and then run the high-tension wire through one of the holes left by the original coil wires to the center of the distributor. Keep this clear of the engine by fastening it at one point to the brace-rod with adhesive tape.

DISTRIBUTER CONNECTIONS

Cut away the insulation from the secondary wire for a distance of about $\frac{1}{4}$ in., cutting the insulation back neatly and leaving no stray wires, also being careful not to cut the wire when re-



Complete assembly of Atwater Kent system for Fords

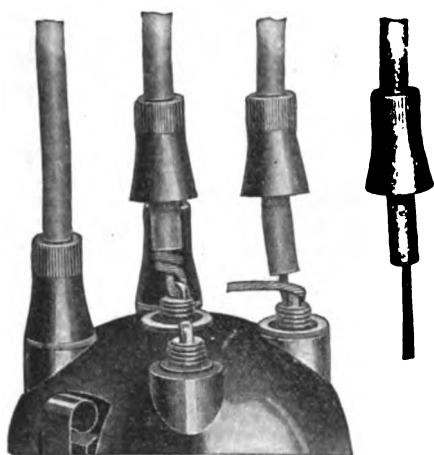


Fig. 7—Method of making connections to distributor

moving the rubber covering. This is shown in Fig. 7.

Unscrew the secondary terminal cover and push this up on the wire in such a way that after the connection is made it can be brought down over the connection and screwed tight.

Pass the wire about three-quarters of the way through the hole in the brass terminal.

Bend the end of the wire back on itself to make one complete turn, as shown in Fig. 7. These wires should not be soldered.

Bring down the insulating terminal cover and screw it down on the terminal so as to seat against the rubber gasket at the bottom of the terminal. It is not necessary to have this any tighter than can be set with the fingers. Do not under any circumstances use pliers for this purpose.

ORDER OF FIRING

The order of firing on the Ford car is 1, 2, 4, 3, in other words, the spark occurs first in the cylinder No. 1, No. 2, No. 4 and No. 3 cylinders respectively.

To find the proper connections to the distributor note: When the distributor cap is replaced on the Unisparker, it will fit only in one position. The terminal to which the distributor block points after the motor is properly timed is always No. 1, and should be connected to spark plug in cylinder No. 1. The next terminal in rotation is No. 2, and should connect to the spark plug in No. 2. The third one connects to cylinder No. 4, and the last one to cylinder No. 3, keeping in mind that the direction of rotation of the distributor is the same as the hands of a clock.

The wires leading to the cylinders No. 3 and No. 4 should be of sufficient length to run up to the radiator brace-rod, to which they should be taped, and then down to their respective cylinders, thus keeping them free from contact with any heated parts of the motor.

BATTERY WIRING AND INSTALLATION

Use six dry cells connected in series (a six-volt storage battery may be used

if desired), the carbon of one cell connecting to the zinc of the next, and so on, leaving at one end of the battery a free carbon terminal and at the other a zinc terminal.

On the Ford touring car the battery can best be located under the rear seat, the cells being installed in a standing position.

On the roadster the cells are placed in the receptacle back of the gasoline tank, and should lie on their sides.

Batteries should be installed so that they are fastened firmly in place, and are insulated from each other and from any metal parts on which they might ground.

The pasteboard covering on the dry cells is utterly useless as permanent insulation; therefore, the cells should be separated from each other by wooden or paper wedges, and care should be taken to see that they are not likely to vibrate loose or in any way come in contact with any metal parts of the car. See that they are packed in tight.

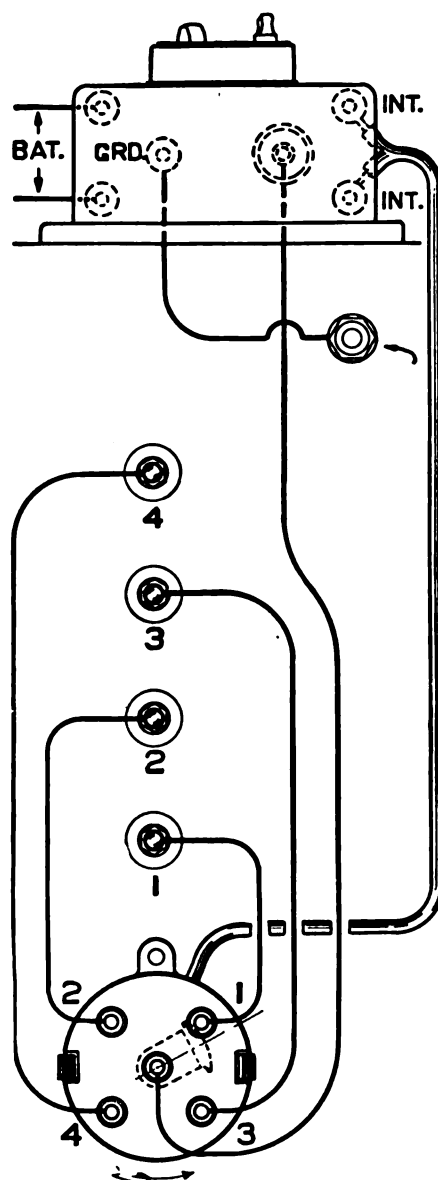


Fig. 6—Diagram of wiring Type K-2 Ford system

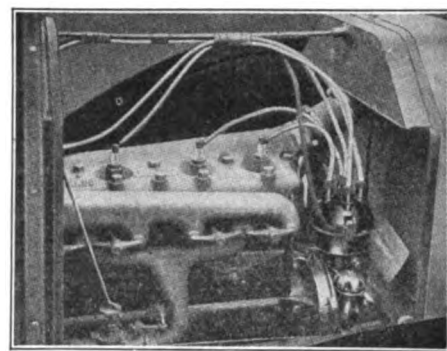


Fig. 9—K-2 Ford system installed complete (side view)

MAKE BATTERY CONNECTIONS AS FOLLOWS

From the post marked "Pos." on the coil run a wire down from the engine side of the dash and along the frame, up under the seat to the point where the battery is installed. This wire connects to the carbon post of the battery.

Another wire should run from the post marked "Neg." on the coil in the same manner, which connects to the zinc post on the battery.

These wires may be fastened with insulated staples to the wooden strips or other wooden parts over which they run. Care should be taken, however, not to drive two staples close together, neglect of this detail being a frequent cause of grounds and short-circuits.

CONTACT POINTS

The only adjustable feature of the Atwater Kent system aside from the initial timing is in the contact points. These are adjustable only for natural wear. The initial adjustment made at the factory should be good for several thousand miles of service.

The contact screw is provided with a number of shim washers against which it is set up tight. When the points eventually become worn they should be dressed flat and smooth, after which a sufficient number of washers should be removed so that when the contact screw is set up tightly it will maintain the proper gap between the points.

This distance between the contact points should be the thickness of a thin visiting card, say 10/1000 in. to 12/1000 in. They should never touch when at rest.

MAINTENANCE

Do not attempt under any condition to alter or change the adjustment of any of the parts of this system. Each part is exactly right in shape, each spring has the proper tension.

The operation of the contact-maker is so rapid that it cannot be followed with the eye, and because you cannot actually see the contact made and broken do not be deceived into thinking that it is inoperative, or that it is defective or worn.

The notched shaft and lifter, also latch which operates the contact spring,

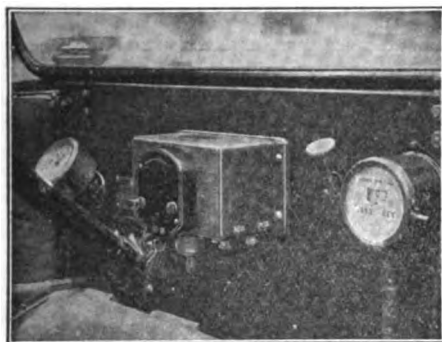


Fig. 10—Kick switch coil installed on Ford dash

are all of glass-hard steel, and their movement is so slight that they are subject to practically no wear whatever.

OILING

Use a small amount of light lubricating oil at intervals of 500 miles. Avoid getting oil on the contact points. See Fig. 11.

LOCATING TROUBLE

If at any time the engine misses do not immediately jump to the conclusion that it is due to the spark of the ignition system. There is far greater likelihood that it may be elsewhere. If missing or falling off in speed is encountered, look first to the valves, note that they are free and seat properly.

1—Note that there is good compression in each cylinder.

2—Look to the carbureter. Make sure it is correctly adjusted and in good order—note carbureter instructions in Ford manual.

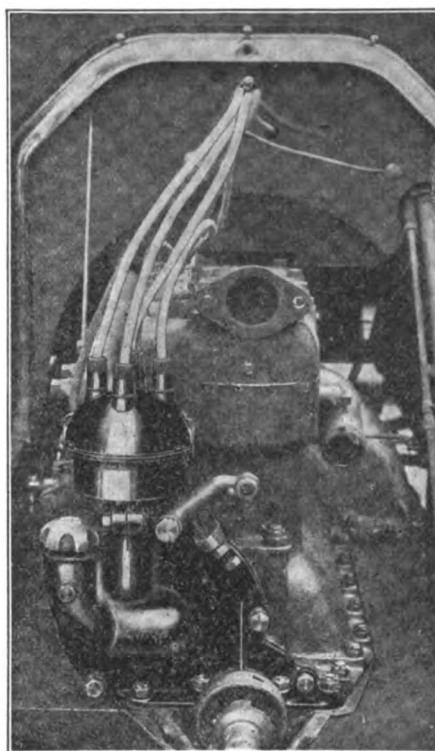


Fig. 8—K-2 Ford system on motor (front view)

If after looking over the valves and carbureter you are convinced that the trouble is with the spark proceed as follows:

1—Look over the wiring, making sure that all battery and other connections are tight. A loose wire will cause jerk-

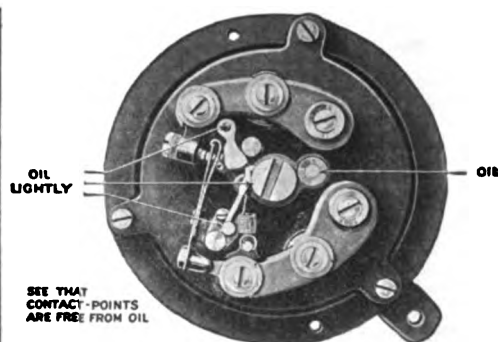


Fig. 11—Oiling diagram

ing of the car and irregular missing—dropping two or three or more explosions at a time.

2—Take off one spark plug wire and note that the spark is at least $\frac{1}{4}$ in. long. If so it should be sufficient.

3—Then test the batteries, which should show at least 3 to 5 amperes.

4—If the batteries are good, examine the primary wiring and contact points. If the points are too far apart, adjust these, leaving the gap about the thickness of a thin visiting card. Note that the points should never touch when at rest.

5—If spark at the plug wire is $\frac{1}{4}$ in. or longer try a new plug first in one cylinder, then in the next and so on until all cylinders have been tested. If this fails to locate the difficulty, examine the secondary wiring between the distributor and plugs. Any plug under suspicion should be replaced with a new one. Simply cleaning will not necessarily restore it.

Getting a Definite Service Understanding with Owner

GARAGE owners are constantly facing the problem of getting definite authorization for the type of service they shall render their patrons, or of obtaining anything in the nature of a contract between the car owner and the garageman. Many Detroit garages are solving this problem by requiring each patron to fill out a card index form, stating exactly what the owner desires, and if desired, authorizing some other party to use the car.

These cards are sent to each owner, together with a circular letter explaining how its use will protect the owner, as well as the garageman. In case of default, the garageman can sue the owner and have a definite ground for suit, and he is at all times provided with a reference showing where the owner may be reached, his credit standing, and all data regarding his car. The letter that goes with the card follows:

Dear Sir: We are inclosing herewith a card, which in the past month has been adopted by nearly every garage in this city. Will you kindly fill in this card and return it to us for our files, crossing off the unnecessary articles you do not wish us to

One Detroit Garage Gets Things Down in Contract Form, Which Assures Protection and Satisfaction

supply you with. This card is merely a written authorization from you to supply you with storage, etc., and is in no way a reflection on your credit. Any mistakes should be promptly reported to the office.

Thanking you for your valued patronage and trusting we may be able to serve you in the future, we are, very truly yours, Fashion Garage, Inc., Detroit.

FASHION GARAGE, Inc. 22-32 Brady Street DETROIT, MICH.	
Customer's Name	Warren B. Road
Address	24 Garfield Ave.
You are hereby authorized to provide storage, furnish necessary supplies, labor and material for my car as stated on reverse side of this order. I declare that I am the owner of said car and that the license plates are registered in my name and I consent that you may have the right of lien and sale in the manner provided for by Act No. 312 of the Public Acts of Michigan of 1915, including the right to retain or retake possession of said car in case of default in payment of bills.	
Owner's Signature	Warren B. Road

FASHION GARAGE, Inc.

22-32 Brady Street
DETROIT, MICH.

Owner of Car Road, Warren B.
 Residence address 24 Garfield
 Residence telephone Garfield 4955
 Business address Forrest & Orleans
 Business telephone Ridge 22
 Make of car Reo License No M-15507
 Class of service desired Storage
Weekly Wash
 Rate per month \$ 15.00
 Where do you wish bills sent? 24 Garfield
 Shall any other than the owner of the car be allowed the use of same? No
 Credit approved: J. M. H.
 Storage commenced May 15, 1917
 Storage discontinued _____
 Account opened May 15, 1917
 Account closed _____
 Rating Good

Repairshop Shortcuts

From The Motor World Roadman

No. 1511—RADIATOR REPAIR STAND

A radiator stand permitting the radiator to be turned in any position is illustrated. By it the radiator is clamped in any position on a swinging arm. The arm is forged steel and is carried on a pipe standard that is bolted to the floor. Thumbscrews permit it to be locked in any position. An up-and-down adjustment is also provided, so that the radiator may be raised or lowered to a height most convenient to the workman. Incorporated in the stand is a revolving table for tools.—C. V. Mackey, Benson's Garage, Loveland, Col.

No. 1512—BATTERY SHOP STAND

It is the usual practice to construct the battery stand of wood and cover it with sawdust to absorb any acid that may be spilled. By making it in the form of a shallow trough covered with lead, sawdust may be dispensed with and the acid drained into a jar placed at one end of the stand. This permits the workman to work faster and is cleaner than the sawdust method.—I. Rae Cowdin, Willard Service Station, Fort Collins, Col.

No. 1513—LEAD TAG HOLDER

Individual storage batteries are designated in the repairshop by means of a lead tag bearing the serial order number of the job. A wall holder for these tags permits a supply to be made up in advance and holds them in numerical order so that they may be removed and applied as the jobs come in. It is mounted at the rear of the receiving bench, and as the work tickets are also serially numbered they are made out at the same time and opportunity for mistake is decreased.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1514—BATTERY REPAIR BENCH

When tearing down or rebuilding a storage battery, lifting or dragging the battery around to make the various parts accessible is obviated by the use of a turntable placed in the center of the bench. This table is mounted on ball bearings and permits the battery to be turned so that the desired part is instantly accessible.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1515—JOB TIMING WATCH

When obtaining the total working time on any job a stopwatch is necessary. An ordinary dollar watch may be readily adapted to this work by placing an automatic stop in the back cover of the watch. When placed face upward, the stop is inoperative, but when turned over drops down automatically onto the balance wheel and stops the watch. By setting the watch at 12 o'clock at the start of the work and turning it over whenever the work is left for any reason, at the finish the watch reading shows the elapsed time.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1516—RADIATOR TESTING

Radiators are usually tested by immersion in water and by application of air pressure to the overflow pipe after stopping the other openings. It is not, however, healthful work on an all-day basis, particularly in wintertime. Then it is advisable to use steam. By the steam method a small amount of water is left in the radiator, and the steam under a pressure of 5 lb. is applied to the overflow pipe. The leak is determined

by the issuing steam and the repair effected. A special combination nozzle is used introducing the steam into the radiator. This combines a gage, the steam and the airline. The gage shows the applied pressure. After the repair is made, air pressure to about 15 lb. is applied to determine whether any weakness is still present. As no time is wasted in placing the radiator in the tank, and then draining it, much time has been saved by this method.—C. V. Mackey, Benson's Garage, Loveland, Col.

No. 1517—ELECTRICAL TESTING

Special equipment is not absolutely necessary in testing a starting motor provided an engine lathe is at hand. The motor may be clamped to the lathe bed and driven from the spindle through a flexible shaft. Such a shaft may be a piece of hose containing a continuous coiled steel spring. One end of this is clamped in the lathe chuck and the other fitted with a coupling for attachment to the armature gear or shaft, and as many of these are provided to fit the different makes of equipment as are necessary.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1518—PISTON INSERTING CLAMP

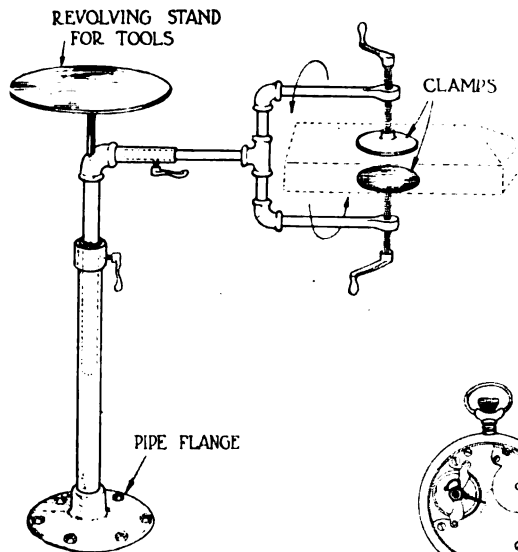
When installing piston rings in Cadillac cars a special clamp of steel tubing facilitates the work. A piece of seamless tubing is beveled at one end to fit the chamfered end of the cylinder and then split in two parts. At one side a hinge is riveted in place, and on the other a latch. To use, the rings are fitted on the piston, the sleeve locked in place and the piston, together with the rings, pushed into the cylinder without danger of breaking.—C. Harris, Sinnard's Garage, Ft. Collins, Col.

No. 1519—TORCH REST

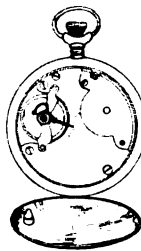
The lead-burning or welding torch, being attached to a length of rubber tubing, is readily drawn from the bench, and is not at hand when wanted. In addition, a lighted torch cannot be laid down without danger. For this reason a special notched rest for the torch is advisable. This comprises a steel upright fastened in a solid lead base in the manner illustrated.—E. Moore, Auto Electric Service Station, Detroit, Mich.

\$1 a Shortcut

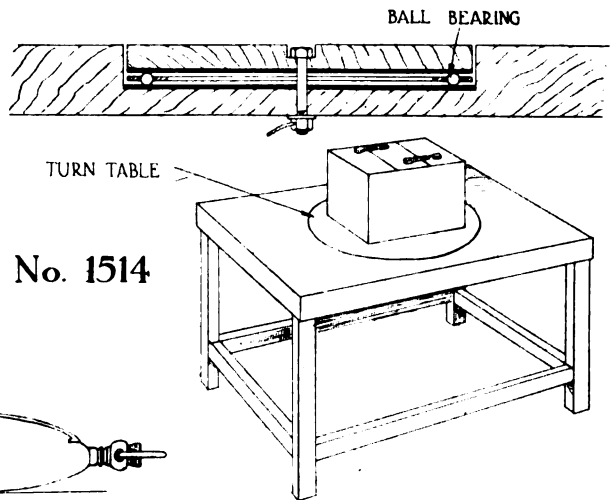
SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.



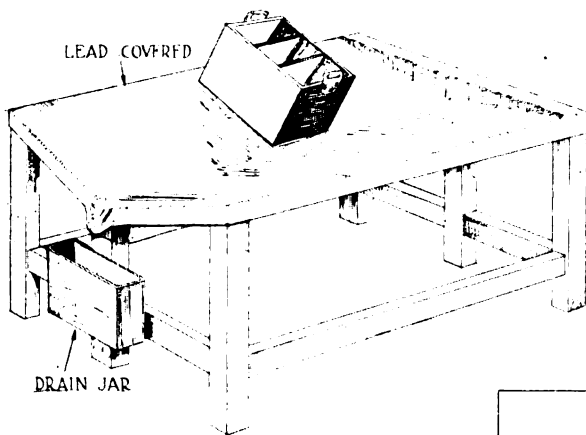
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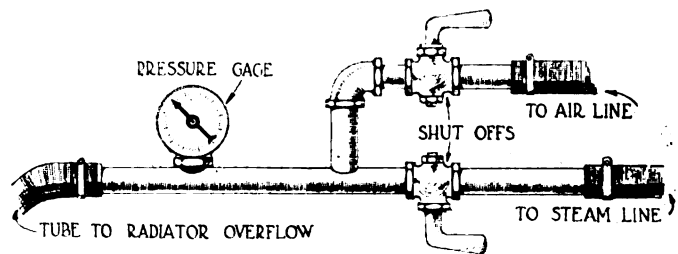
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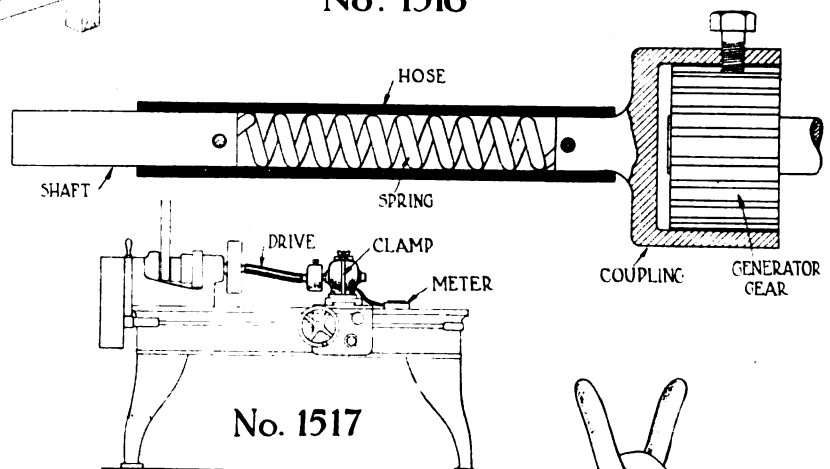
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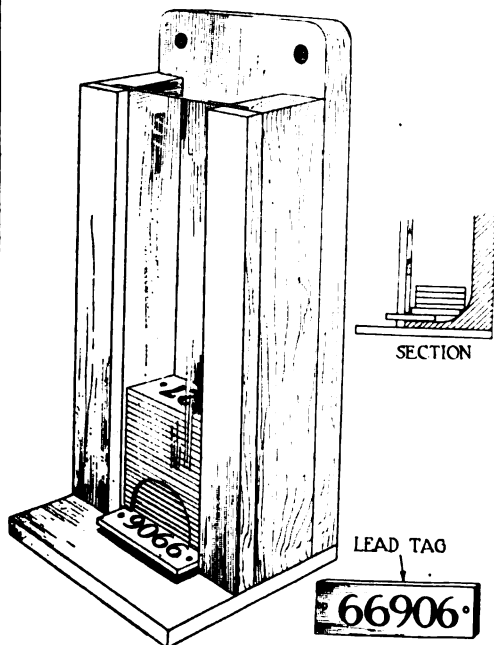
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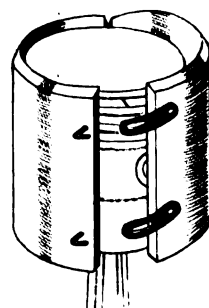
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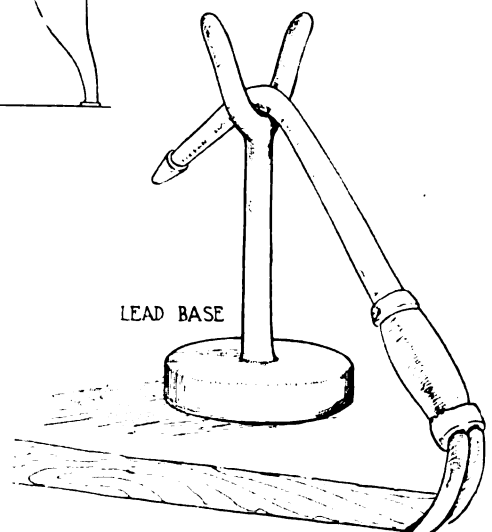
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No. 1513



No. 1518



No. 1519

Winter Business

Keep
Up
the
Work

Here's How

One Dealer Is Boosting Winter Business

WINTER BULLETIN D'HIVER

LA CIE RENAUD D'ACCESSOIRES D'AUTOMOBILES
326 STE-CATHERINE EST

THE RENAUD MOTOR SUPPLY CO.
MONTREAL, CAN.



Co Bulletin est publié dans l'intérêt du public automobiliste, afin de faire connaître les détails nécessaires pour le bon fonctionnement d'une machine durant les mois d'hiver.

This Bulletin is compiled to convey to motorists helpful suggestions which will make your winter driving as enjoyable as during summer months.

IT is very cold in Montreal, but that didn't prevent the Renaud Motor Supply Co. from making a drive on Winter Accessories. It mailed out the letter shown above to every firm in its territory that uses cars or trucks for commercial purposes, and with it sent its Winter Bulletin. This company is a jobber, but also has a large retail store.

Much of the trade in Montreal is French, so part of the bulletin is in that language. "Bulletin d'Hiver" means "Winter Bulletin," so you can see how the two terms are cleverly linked together on the front cover.

This bulletin was also sent to dealers accompanied by a discount sheet.


The mails are one of the cheapest means of getting Winter business. A letter that costs a few cents may bring in profits amounting to dollars, or a telephone call may net big returns.

236 STE-CATHERINE EAST LONG DISTANCE PHONE EAST 6826

THE RENAUD MOTOR SUPPLY CO.

AUTOMOBILE ACCESSORIES ACCESSOIRES D'AUTOMOBILES

MONTREAL, CANADA
Nov. 21st 1917.



Mr. Car-owner:


No doubt you would be surprised to know that it is cheaper to operate your car during the Winter months than in other Seasons. Well just look over the special Winter bulletin that we enclose for your kind inspection and we are quite sure that you will agree there is a lot of truth in our assertion.

The cost of the few accessories necessary to permit safe and comfortable driving during the Winter is a mere trifle, when you consider the real enjoyment and pleasure at your disposal. Then if you consider that the upkeep of tires, tubes etc. during the Summer months is exceedingly heavy, is now greatly reduced, the only conclusion we can arrive at, is that Winter driving allows a lot of pleasure at a little cost.

We trust that this Bulletin will have your kind attention, if so, we are assured of a visit to inspect the varied assortment of accessories which will promote Winter driving with the maximum of comfort and minimum of inconvenience.

At your service,
The RENAUD MOTOR SUPPLY Co.

AR/PM



Send YOUR Ideas

This Winter Business Department wants to know how dealers, jobbers and garagemen are getting Winter Business. Send your ideas.

November 28, 1917

MOTOR WORLD 25

How One Jobber Pushes Winter Goods

And there is a big thought here for both Jobber and Dealer

Gaul, Derr & Shearer, a Philadelphia jobber, is sending to his customers the letter that is shown on this page. The letter is shown for two reasons:

- 1.—It is a good example of the persuasive Winter Business work that the jobber may do.
- 2.—It is to the dealer and garageman a mighty good list of suggestions for getting Winter Business.

Every jobber and dealer should read this letter. Then, each jobber should make strong Winter Business plans. And each dealer should jump into Winter Business in a style that will bring him a profit instead of a slump and a loss.

Motor World requests that jobbers, dealers and manufacturers send in their plans and ideas for getting Winter Business. We want to print them.

He Wants a Letter

Editor Motor World: I have read your letters in Motor World as how to sell different articles in the automobile business. I am running a small garage and undertaking it at present. I would like to send to every automobile owner in this vicinity a well worded letter covering everything in the garage line and bringing out the larger and better facilities we shall have after our new addition is finished.

I would like you, if possible, to send me such a letter. As I am a reader of your Motor World, I would be very much pleased if you would help me in this effort.—H. A. Hunsberg, 141 Hill Street, Mattapan, Mass.

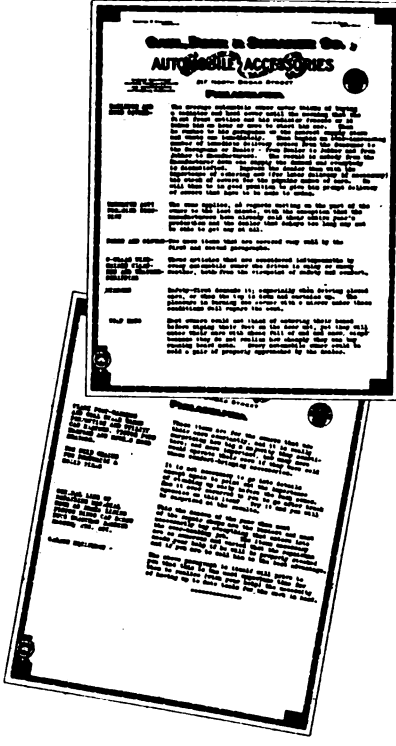
The Letter

This is a time of year when you should give careful attention to your car. After a season's driving it may need numerous little adjustments and attention to prevent small trouble becoming big—and expensive.

Your first step should be an INSPECTION. Therefore, if any work is needed you should, of course, patronize a good garage.

The Wall Hill Garage has always been a good garage, but today it is better than ever, for we have just overhauled it. The building has been enlarged, new equipment has been added, our service plan has been improved, and we are better able than ever to give you service that will please you.

We invite you to visit our remodeled home. We are so enthusiastic about it ourselves that we sometimes seem too enthusiastic when we try to tell others about it. But we do believe you will agree there is **SOME** sense for our enthusiasm when you see the new plans, the new facilities and the up-to-date stock of accessories, all of which are for the purpose of making your winter motoring a pleasure and a comfort.



THE cut above is a page that appeared in the Winter Business Department of Motor World, Nov. 28. As soon as this page was seen by W. H. Rowerdink & Son, a jobber in Rochester, N. Y., the company took the Gaul, Derr & Shearer letter, put it on its own letter head and sent it to its salesmen.

Thus the Winter Business ideas that a Philadelphia jobber has scattered in his territory have been scattered in the Rochester territory. It would be fine if they were scattered throughout the United States.

As was said Nov. 28, these ideas are of value to the dealer. They suggest lines of Winter Business activity, each of which means Winter Profits.

One thing dealers should remember: Stocking goods is NOT ENOUGH. If goods are stocked the dealer has made a start toward Winter Profits, but if he doesn't make an aggressive effort to sell these goods he is helping turn his would-be profits into losses, for goods left standing on the shelves are not a source of profit. Turnover is what counts.

Effort is the cheapest thing the dealer has. It costs nothing. It is just as cheap to hustle to sell goods as it is to hustle at something less profitable. Hustle isn't profitable unless it is along profitable lines. And time that is spent in WAITING FOR SPRING is a drag on any business. Never wait for things. Be doing something while you wait.

If you haven't started yet start NOW.

How One Jobber Used the Idea of Another Jobber

W. H. ROWERDINK & SON

75 BE NORTH AVENUE

ROCHESTER, NEW YORK

December 3, 1917.

SALESMEN'S LETTER # 81

RADIATOR AND HOOD COVERS—

The average automobile owner never thinks of buying a radiator and hood cover until the morning that the first frost settles and his radiator freezes or it takes him an hour or more to start his car. Then he rushes to his garageman or the nearest supply store and waits one immediately. Then begins an ever-increasing number of immediate delivery orders from the consumer to the Garageman or Dealer— from Dealer to Jobber and from Jobber to Manufacturers. The result is nobody from the Manufacturer down can supply the demand and everybody is dissatisfied. Improve the dealer then with the importance of ordering now (for later delivery if necessary) his stock of covers for the popular makes of cars. We will then be in good position to give him prompt delivery of covers that have to be made to order.

JOHNSON'S ANTI FREEZING SOLUTION

The same applies, as regards waiting on the part of the owner to the last minute, with the exception that the manufacturers have already sold their entire year's production and the dealer that delays too long may not be able to get any at all.

BOMBS—

This item is covered very well by the first and second paragraphs.

OUTLOOK WIND-SHIELD CLEANERS AND WEATHER-STRIPPING

Three articles that are considered indispensable by every automobile owner who drives in rainy or snowy weather, both from the viewpoint of safety and comfort.

MIRRORS

Safety-first demands it; especially when driving closed cars, or when the top is down and curtains up. The pleasure in turning one corner with a mirror under these conditions well repays the cost.

STEP MATS

Most owners would not think of entering their home before wiping their feet on the door mat, yet they will enter their cars with shoes full of mud and snow simply because they do not realize how cheaply they can buy running board mats. Every automobile owner could be sold a pair if properly approached by the dealer.

BOW SKID CHAINS FOR FURNACE & SOLID TIRES

It is not necessary to go into details except again to point out the importance of stocking up early before the rush comes. Has it ever occurred to you to go after truck agencies on this item? Try it, and you will be surprised at the results.

GENERAL LINE OF REPAIRING MATERIALS SUCH AS WARE LINE, LUBRICANTS, RINGS, OIL SCREENS, ETC.

This is the season of the year when most of the repair shops are the busiest and must necessarily buy everything that enters into the over-hauling job. The items necessary are so numerous and varied that the repairman needs your help if he will be properly stocked and if you are to sell him to the best advantage.

GARAGE EQUIPMENT

The above paragraph in itself will prove to you that this is the most opportune time for them to realize (with your help) the necessity of having up to date tools for the work at hand.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Garageman Not Responsible for Cars Destroyed by Fire

*Unless Negligence Can Be Shown—How to Keep Records of
Cars Left in Storage*

Editor Motor World: Can a car owner claim damages from us when he stores his car with us either for live or dead storage if his car is destroyed by fire or is stolen, when we tell him verbally or notify him afterwards by letter? Also are we liable if things are stolen out of his car while it is in our garage, when we tell him beforehand that we are not responsible for articles left in cars and when this notice is posted in conspicuous places throughout the building?

We have attached to our letter a form showing how we keep our records, with reference to cars left for dead and live storage. Kindly advise us if this record is good enough and if it is sufficient enough.

Please advise how this is handled in other garages and whether or not it is necessary to carry more insurance on the building where cars are left for storage in this way.

At the end of each month when we collect for storage charge we enter the charge in the succeeding column and issue our regular sales ticket to our general office. If the car becomes live storage the charge in that column and in that particular month will indicate it.

Do you think this is a good enough record and is it efficient enough?

This record is in book form and each month all cars in dead or live storage are checked with the record. We also place the owner's name on each car so stored.

We keep our transient record on much the same form, only it is in the form of a counter register and each customer is given his claim check in the regular way and the numbers are entered opposite his name. This record also shows in which stall his car may be found and light repairs, such as changing a tire, are also entered in a separate column. Please also advise regarding this.—HAVRE COMMERCIAL CO., Havre, Mont.

As a garageman is not an insurer of property left in his care he is not responsible if the car is destroyed by fire unless the fact appears that he was so negligent that he can be charged with

having failed to use ordinary care to preserve the property left in his charge. Of course, if the garageman were so negligent as to be chargeable for the loss of a car, the writing of a letter after the fire occurred would not bind the owner.

If an agreement were made beforehand, relieving the garageman of any responsibility for the loss, that would be a different proposition. The responsibility of a garageman for cars stolen is similar to his responsibility for goods burnt up.

Ordinarily when small articles of personal property are left in a car which is stored at a garage, the garageman is not responsible for their loss unless the owner previously called his attention to the fact that he was leaving the articles in the car and the garageman expressly or impliedly consented to take charge of them.

[As to your form, it is sufficient if it answers the purpose, which is about all that can be said for any form or system. Law does not require specific types of form in cases like this. Ask yourself: If you went before a jury with this form would you be able to show them the facts in the case so they would have no doubt, or do you think your business requires something else? From a business standpoint the form seems to be all right. Your transient form seems to be sufficient. If these forms or any other forms tell you what you ought to know about your business they are sufficient. That is the only test that can be applied.]

[As to insurance, it would seem that you should pay regular garage rates, but it is difficult to answer your question fully unless we know insurance conditions in your town and what you are now paying. We suggest that, no matter what you are paying, you consult a good insurance man and ask him if there are not a few little changes you can make that will greatly affect your rate. Sometimes dealers have found that amazingly inexpensive changes make a big difference.—EDITOR.]

Who Is Responsible?

Editor Motor World: Recently a car was driven into our garage and left there while the passengers went to the hotel for lunch. I was out at the time and when the man in charge was asked if the robes could be left in the car he said yes. I am never responsible for robes and things left in a car brought to my garage unless they are locked up in the office. When the people came back from the hotel they claimed that a robe was missing and demanded that I pay for it. When is a garageman responsible for things left in a car if he has a rule that they must be locked up?—M. M., Boston, Mass.

Answer—I should say that a good example of when a garageman is liable for personal property left in his care would be your own case. The motorist asked the man you left in charge if the property was safe, and he agreed to care for the property until the motorist returned. Of course, in your absence, the man you left in charge was acting for you, and anything which he did would be binding on you even though you might have had a rule that things must be locked up and had signs displayed calling attention to that fact. Ordinarily a garageman is not responsible for personal property left in a stored motor car.

Havre Commercial Co. MONTHLY STORAGE

Owner's Name	Post Office	Date In—Out	Kind of Car	Dead or Live	Jan.	Feb.	Mar.	April	May	June	Remarks
John Doe.....	Havre.....	Jan. 1	Ford....	Dead...	5.00	.....	.....	.....	.....	.....	Left for six months

New Accessories

At the Show

As usual, the New York show has brought into the spotlight a wealth of new accessories which will help to keep the cash register jingling and a balance on the proper side of the ledger

Kellogg Air-Cooled Garage Pump

A four-cylinder, heavy-duty, electrically-driven, air-cooled garage pump, with poppet valve in the head. Cylinders are $1\frac{1}{8}$ in. bore and $1\frac{1}{16}$ in. stroke, having a capacity of 1.6 cu. ft. of free air per minute. The regular equipment includes an automatic cutout which stops the motor when the tank pressure reaches 200 lb. per sq. in. The motor is $\frac{1}{4}$ hp. for either alternating or direct current. Price, \$175 with alternating-current motor, or \$165 with direct-current motor.—Kellogg Mfg. Co., Rochester.

Kellogg Combination Grease and Oil Gun

This is made with two 6-in. curved spouts for use with oil or grease. A powerful cut rack and pinion movement gives the necessary leverage to handle heavy grease. A special type of piston insures powerful suction. The threads in both cap and valve are extra heavy, to guard against stripping. The length of barrel is $8\frac{1}{4}$ in., diameter $1\frac{1}{8}$ in., and capacity 8 oz. Price, \$2.50.—Kellogg Mfg. Co., Rochester.

Kellogg Compound Pump

Two- and three-cylinder hand-operated tire pumps have superseded the single-cylinder pump on account of the greater efficiency and ease of working. They are equipped with renewable stuffing box packings, prepared by a secret process. Furnished with large handles and foot pieces of extra strength. The two-cylinder pump is provided with a 20-in. hose and the 3-cylinder with 36-in. Prices, \$4 and \$6 respectively.—Kellogg Mfg. Co., Rochester.

Letts Headlight Deflector

A metal deflector held in place within the headlamp by the bulb, which is screwed through a round opening at the top of the deflector. Projecting double oval wings reflect the ray backward and outward and direct it downward without absorbing light. Can be adjusted so that the direct ray strikes the road at any required distance. It fits all sizes of lamps, and requires no tools for adjustment. Price \$1 per pair.—Hill-Smith Metal Goods Co., Boston.

Cowles Window Lift

A window lift installed on the filler board of the door as a unit. It is operated by a small nicked crank, and so constructed

that the glass locks itself automatically every half inch, both in raising and lowering. The automatic lock only operates when the hand is removed from the crank.—C. Cowles & Co., New Haven.

Cowles Concealed Toilet Case

A flush-fitting toilet case of mahogany, with nicked edges, and equipped in a wide variety of styles, for both men and women. Opened by a push-button.—C. Cowles & Co., New Haven.

Cowles Window Channel

This is a japanned-on-steel upper felt-lined channel for windows and door glasses. It is of ample size, $\frac{3}{8}$ in. high by $\frac{1}{2}$ in. wide.—C. Cowles & Co., New Haven.

Cowles Inside Tonneau Light

A very small flush type inside tonneau light, $1\frac{1}{2}$ in. over all. Its size permits it to be used where space for installing is limited. Finished in nickel.—C. Cowles & Co., New Haven.

Cowles Special Dome Light

These are cut-glass lights, in exclusive patterns, for different makers or owners. They are cut to order, with any design, and serve as distinguishing marks. They are made in all sizes and types for every kind of car.—C. Cowles & Co., New Haven.

House-Type Wire Wheel

A wire wheel designed for Ford cars, locked by the hub cap, which tends to tighten itself as the car advances. An inner pawl engages slots on the interior of the hub which prevents the wheel from becoming loose should the car be backed for any distance. An ordinary wrench removes the wheel readily, the pawl being held out of action by the surface of the wrench when applied to the hub. They are finished in standard enamel, black, white or red. List price, \$50 per set.—Wire Wheel Corp. of America, New York.

Columbia Starting Batteries

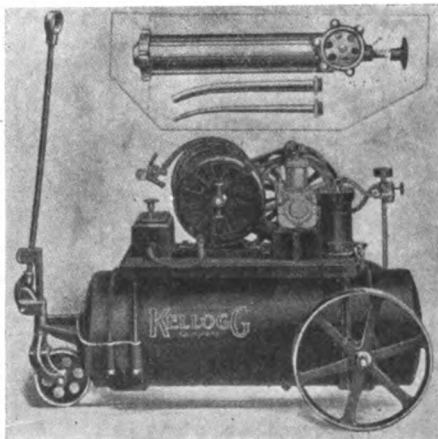
A unit cell battery using no sealing compound between jars and case. It is sealed only in post-strap wells, so securely as to prevent any danger of the electrolyte escaping into the bottom of the case. The parts are all standardized, so that any plate combinations may be used with the same covers, connectors, etc. The case is impregnated by a special process which prevents penetration of the acid, and no corrodable metal is used in the construction. The jars are tested for 30,000 volts and have a tensile strength of 4000 lb. The polarity is permanently indicated by means of colored sealing rings, red for the positive and black for negative. Made in all sizes and adapted to every make of car. List prices range from \$34.50 to \$70.75.—National Carbon Co. Cleveland.

Non-Gran Bushings

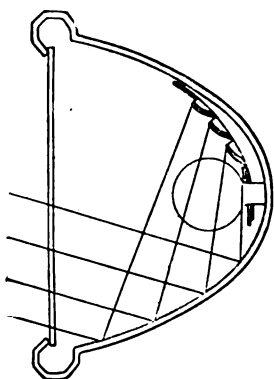
Non-Gran high-speed bearing bronze is now made up in finished bushings especially adapted for Ford cars, for the greater convenience of dealers and repairmen. These are carried in stock for immediate shipment.—American Bronze Corp., Berwyn, Pa.

Knickerbocker Forma-Tractor

A 3-ton tractor for road use, consisting of a heavy channel-steel frame, which is placed under and supports the rear of a Ford car; a $2\frac{1}{4}$ -in. round axle with heavy artillery-type wheels, provided with roller bearings, internal gear drive, external contracting 19 x $2\frac{1}{2}$ -in. brakes, operated by a heavy lever anchored on the tractor frame. The table carrying the fifth wheel attachment is supported by springs 32 x $2\frac{1}{2}$ in., set on a solid axle. It has a wheelbase of 102 in., with an option of 114 in. The gear



Kellogg air-cooled garage pump



Letts ray deflector

ratio is 14 to 1, and the speed is 6 to 10 m.p.h. When the load is properly distributed 1 ton rests on the tractor wheels and two on the trailer wheels. The tractor is simply clamped to the Ford frame without drilling or cutting, and can readily be removed from one car to another. In attaching, the Ford is not dismantled, and every part is utilized except the rear wheels and rear fenders. Price, \$450 f.o.b. New York. Cost of attaching, \$10.—Knickerbocker Motors, Inc., New York.

Spiltdorf Munger Piston Rings

This is a one-piece concentric piston ring, the joint being made by a double cut giving a close seat at an angle with the face of the ring. It is claimed that the expansion joint of the ring is so designed that there is no change in its tightness due to wear. The surface of the ring coming in contact with the cylinder wall is not polished, but is finished with minute grooves to insure a perfect seat. Rings are made for all size cylinders. A special Ford assortment consists of eight regular and four oversize rings, with grooving tool, insertion tool, and full directions for use.—Spiltdorf Electrical Co., Newark.

Munger Piston Regrooving Tool

A regrooving tool provided with an adjusting screw to adapt it to different size cylinders. Used to true up the groove to the ring, and especially adapted for use with the Munger "always-tight" piston ring. Its distinctive feature is that with its use it is not necessary to disconnect the piston from the connecting rod. It is said that its work is as exact as that of a lathe.—Spiltdorf Electrical Co., Newark.

Minute Demountable Wheel

A demountable wheel for Ford cars. A set consists of four main hubs to fit on the axle spindles, all the auxiliary parts for five wheels, an extra wheel, and the Minute wrench. The Ford wheels are retained, the hubs only being taken out and replaced by Minute hubs. The extra wheel furnished is 30 x 3½, plain clincher run for Ford cars. Price, including a full set of Minute hubs and an extra flange, \$30.—Hill-Smith Metal Goods Co., Boston.

Wilson Woven Hair

A specially treated upholstery hair adapted to automobile seats, in which the hair is woven on jurlap. It is made in sheets from ½ to 3 in. thick, and can be cut to the exact shape of the cushions.—Wilson & Co., Chicago.

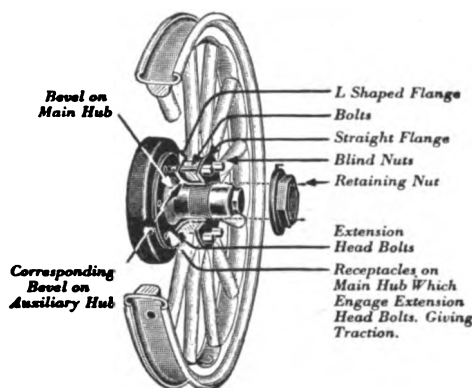
Stromberg Carbureter

A plain tube type carbureter for Dodge cars, having the air passages of fixed size

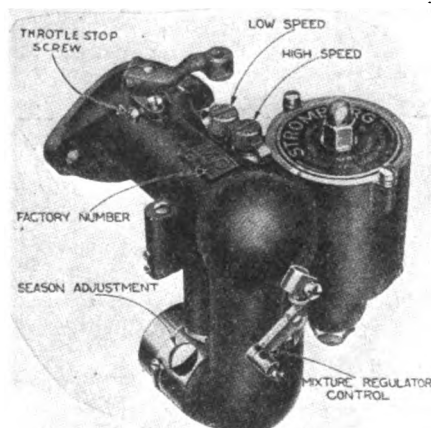
while the gasoline is automatically measured by the flow itself for all speeds of load by means of the air-bleed nozzle construction. The dash control operates a butterfly valve in the air horn of the carbureter. It is interchangeable with the regular equipment. Price, with all fittings, \$20.—Stromberg Motor Devices Co., Chicago.

Raybestos Disk Clutch Facings

These disk-clutch facings are now being furnished direct to dealers, packed in boxes ready for use, and marked for car, type and size. They are adapted to every type of car. Each box contains 20 rings. Dealers' prices vary from 39 cents to 95 cents per



Minute demountable Ford wheel



New Stromberg for Dodges

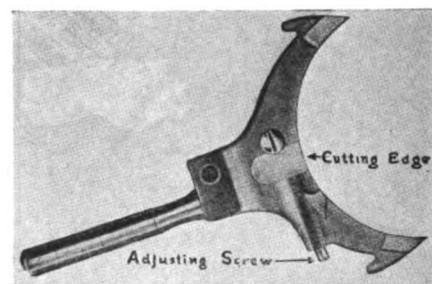
ring, according to size.—The Raybestos Co., Bridgeport.

Mosler Vesuvius Plugs

The Mosler plugs are now being made in two new styles for tractors and aircraft. The insulation used is Vitlite, an American product, which has been developed to take the place of European insulators. The tractor types are ½ and ¾ in. respectively, the former for use in all tractors of ½-in. pipe thread using a water jacket, and the latter especially for the Hart-Parr and Fairbanks-Morse tractors. Price, \$1.—A. R. Mosler & Co., New York.

Burke Condenser

A condensing coil for all water-cooled cars, designed to collect the alcohol vapor from the radiator and return it in liquid form. It consists of a shell to receive the vapor, the lower end of which is screwed into the radiator in place of the regular cap. A worm is connected to the top and bottom of the shell and a double-acting relief valve is mounted at the top of the shell to relieve



Above—Munger piston regrooving tool.
Below—New Munger-Spiltdorf piston ring

pressure in the radiator. When this device is used the overflow pipe is closed, preventing the loss of fluid, and keeping the proportion of alcohol and water constant. When steam is generated in the radiator any excess over that condensed is discharged through the relief valve in full view of the driver instead of through the overflow pipe, where it is not visible. The size of the standard model for large cars is 5½ in. The Little Giant model for small cars is 2½ in. Prices, \$10 and \$5 respectively.—Automobile Device Co., 1619 Samson Street, Philadelphia.

Halladay Bumper

This is a spring steel bumper which is reinforced at either with coil springs designed to absorb the shock if the bumper hits any object at an acute angle.—Asch & Co., New York.

Lamp Post Tire Carrier

This is a bracket attachable to the lamp post of any Ford car, and provided with straps by means of which the tire is held fast. Price \$2.—Asch & Co., New York.

Sternwear Inner Tubes

Sternwear inner tubes are several times as thick as the conventional inner tube, and are reinforced with two strands of fabric inlay. Made in sizes from 30 x 3 in. up to 37 x 5 in. Prices \$8.70 to \$25, depending on size.—Sterns Tire & Rubber Co., New York.

New Waltham Speedometer

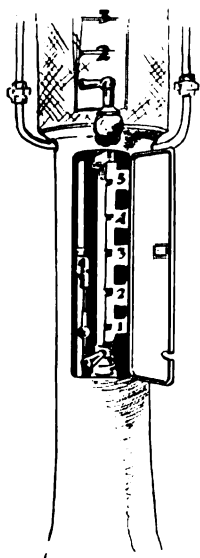
This differs from the standard type in the omission of the figure representing tenths of a mile in the total record and the reduction of the trip total from 999.9 to 99.9 miles, measured by tenths as before. The instrument is equipped with a new type of shaft composed of four strands of piano-wire wound helically about a core of longitudinal wire. This construction permits a much greater bend in the shaft than the universal joint construction formerly used. Price \$50 complete with eight-day clock.—Waltham Watch Co., Waltham, Mass.

Gabriel Windshield Cleaner

The cleaner is attached to the top of the windshield frame in a fixed position and held horizontal by a coiled spring. It is actuated by a cord attached to its free end, passing around the edge of the shield and attached to the top frame. A pull of the cord clears a semicircular space in the glass and the spring returns the cleaner to its original position. Made for either wood or metal frames. Price \$2.—Gabriel Mfg. Co., Cleveland.

Belknap Electrical Air Heater

This is an electrical heating unit for preheating the air taken through carbureter.



To prevent unauthorized persons tampering with the mechanism, it has all been put inside the steel case, which can be locked—Guarantee Liquid Measure

It is arranged for any voltage, uses about 5 amperes, and may be attached to any car.—Charles H. Belknap.

Amazon Cord Tire

A new cord tire with the usual Amazon S tread is being made in the 4 x 34-in. size and all larger sizes.—Amazon Rubber Co., Akron, Ohio.

New Povasco Wheels

A new buttonlike finger grip is the feature of two wheels of the Povasco line. These grips are directly underneath the rim instead of on the inside edge, as is customary. A truck model and passenger type are offered, finished in black or tan, with malleable iron, brass or aluminum spiders.—Pouvall-smith Corp., Poughkeepsie.

Peters & Herron Tire Covers

This is a new line of tire covers of enameled duck fabric furnished in a large number of combinations of fancy colors, and made for all tire sizes.—Peters & Herron Dash Co., Columbus, Ohio.

Coffin Garage Wash Lamp

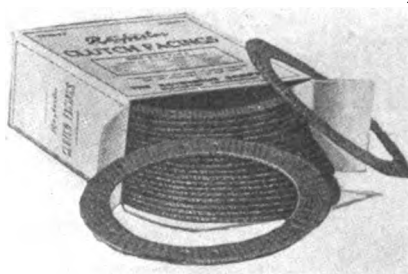
This model is similar to the previous types of garage lamps, except that it has an elbow about 4 ft. from the ground and another elbow and swivel at the top of the stand which is 11 ft. in height.—Coffin Valve Co., Boston, Mass.

New Guarantee Liquid Measure

The air valve in these liquid measures has now been combined with the electrical switch into one piece of mechanism and placed inside the pedestal, so that when the metal door is locked the instrument cannot be tampered with. The new line is called the Underwriter's Model, as it was adapted in accordance with recommendations of the Board of Fire Underwriters. Price, \$330.—Guarantee Liquid Measure Co., Rochester, Pa.

Centrifugal Clear Sight

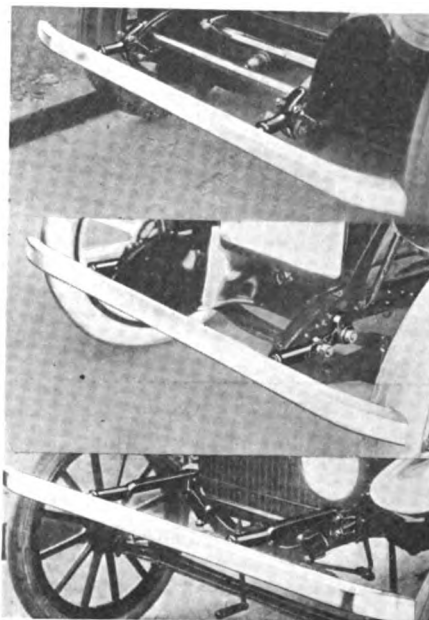
This is a wind-shield device of an entirely novel design. It consists of a circle of glass fitted into a circular hole in the wind shield and revolving at 1500 or more r.p.m., centrifugal force keeping the glass clear of rain, snow, or dirt. Power is derived from a tiny cylindrical motor 1 in. in diameter by 1½ inches in length. This is held in position by a hollow horizontal bar attached to the wind shield. The shaft of the motor is secured to the center of the revolving glass. The motor is driven from the electrical system of the car or by dry cells, the wires being connected with the motor through



Raybestos clutch facing is now made for disk clutches

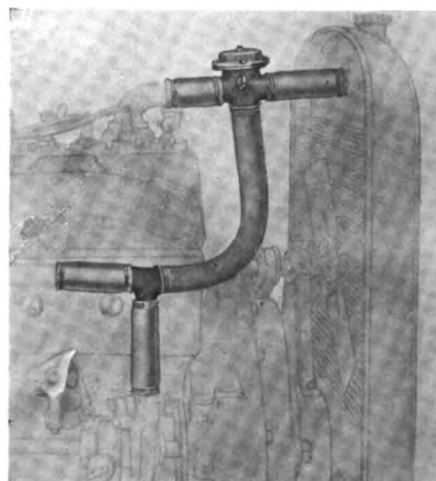


Mosler has a new tractor plug



Ever-Good bumpers have been redesigned

the horizontal bar. Six volts are required to operate the mechanism, which draws about 1 amp. Furnished as special equipment, price, \$20.—Automobile Devices Co., Philadelphia.



The Rayfield thermostat is inserted in the water line and controls the flow of water so as to maintain the temperature at 170 deg. Fahr.

Dunham Heater for Fords

This heater is mounted on a floorboard, which may be inserted in place of the regulation floorboard in a Ford car. The heat is furnished to the register from the exhaust pipe, and is evenly distributed by baffle plates in the registered drum. Price, \$5.—Thomas Dunham Co., Laroy, Ill.

Rayfield Thermostat

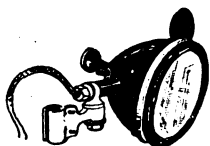
An instrument to control the cooling temperature of a motor car, truck, or tractor engine having pump circulation, known as the Rayfield Thermostat, is designed to stop circulation in the cylinder block when the engine is cold, but does not prevent water circulation in the radiator. This is accomplished by means of two butterfly valves linked together in connection with an expansion coil which opens the upper valve and closes the lower one when the circulating water reaches a temperature of 170 deg. Fahr., thus permitting circulation through the radiator. When the engine is cold the upper valve is closed and the lower one open, the water circulating through the radiator and pump only. Thus the water in the cylinder block is gradually displaced until all of the water in the system is raised to the predetermined temperature, which in this case is 170 deg. Fahr. It is claimed that by this device the water in the cylinder block can be brought to its best operating temperature in from 2 to 4 minutes. Price, \$15; extra fittings varying from \$1.55 to \$1.05, depending upon the make of the car.—Findelsen & Kropf Mfg. Co., Chicago.

Ever-Good Bumpers

New brackets and other changes have been introduced into the Ever-Good line of bumpers, which has been completely redesigned. The most noticeable change is that most of the brackets are now tubular in shape. There are also special brackets made for cars having splash pans. The new line includes special types for Cadillac, Dodge, Ford, Chevrolet and Saxon, etc., and rear bumpers for practically all other cars.—Emil Grossman Mfg. Co., Brooklyn.

S. & M. Spotlight

A press-button switch fitted into the rear of the lamp, which turns the light either off or on by the same motion is the feature of this new spotlight. The reflector is of solid spun brass triple silver-plated. The outer casing is of pressed steel finished in black enamel, and nickel trimmed. Price, \$12.50.—Consolidated Sales Co., San Francisco.



S & M spot lamp has an ingenious switch

Peerless Radiator for Fords

This combination radiator, hood and shield is an addition to the other lines of Peerless radiators, and was made particularly to convert the 1915 and 1916 Ford car into the appearance of the latest model. It gives the car a streamline effect, the hood being tapered so as to insure the proper fit and effect when assembled on a car. Price, \$35.—Corcoran Mfg. Co., Cincinnati.

Titeflex Muffler and Exhaust Pipe

This is a corrugated metal pipe having a single wide deep groove of helical form, into which are screwed the fittings attached to the exhaust manifold. The corrugations permit easy bending to the desired form without flattening. The exhaust gases are deflected by the corrugation, thereby deadening the noise. The noise of the exhaust is deadened further by means of a deflector strip in the rear end, which has vanes bent in opposite directions, causing the gases to flow through a zigzag path. The pipe is fitted with a fish tail shaped end piece.—Titeflex Metal Hose Corp., New York.

A. W. Convertible Top

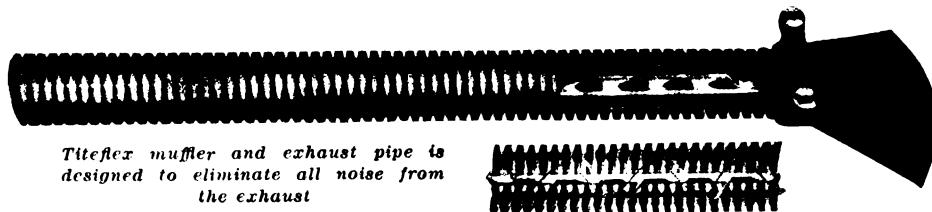
Glass panels bounded by metal strips, together with a standard A-W summer top, constitute a convertible top which makes it possible to change a touring car into an inclosed model. This model is made for all cars, and the detachable windows are held in place by patent clamps, the panels above the doors being designed to swing open with the doors.—Made by Adams-Williams Mfg. Corp., New York.

New Unloader on Curtis Pumps

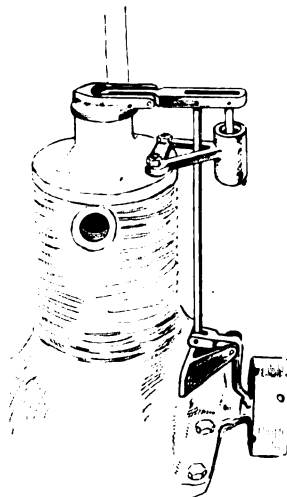
A new type of mechanical unloader for starting duty has been fitted to the Curtis air compressors. This is a safety valve, which is automatically put into use when the motor is started, so that the engine will not stop against 100 per cent pressure. As the speed increases the valve is gradually shut off. Formerly the unloading was accomplished by a hand device.—Curtis Pneumatic Machinery Co., St. Louis.

U. S. Buffer and Grinder Attachment

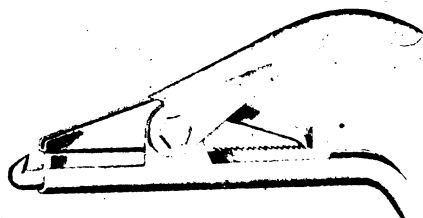
New models of U. S. air compressors are being fitted with a buffer and grinder attachment which is secured to the base of the air-compressor outfit and driven by a belt from the main shaft of the motor. The stone wheel is 10 in. in diameter, fitted at



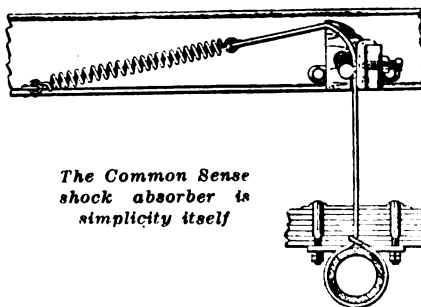
Titeflex muffler and exhaust pipe is designed to eliminate all noise from the exhaust



The Curtis air compressor has a new type of automatic unloading device



May's cotter pin puller does the work quickly



The Common Sense shock absorber is simplicity itself

the left of the device, and a 10-in. wire buffing brush is at the right.—United States Air Compressor Co., Cleveland.

Brewer-Titchener Self-Raising Sockets

The self-raising feature of the Brewer-Titchener one man top sockets consists of a long coil spring concealed within the main tube, which is used in combination with the company's standard one-man type of sockets, so constructed that the weight of the complete top is counterbalanced by the spring, thus making a top which is raised or lowered with the least possible effort.—Brewer-Titchener Corp., Cortlandt, N. Y.

May's Cotter-Pin Puller

This is a device shaped somewhat like a ticket punch. The action of the handle draws in a heavy steel sliding hook which is fitted into the lower jaw of the puller. The jerk on this hook, combined with the pulling force of the operator, makes the removal of cotter pins an easy matter.—Brewer-Titchener Corp., Cortlandt, N. Y.

Asch Twin Spare Rims

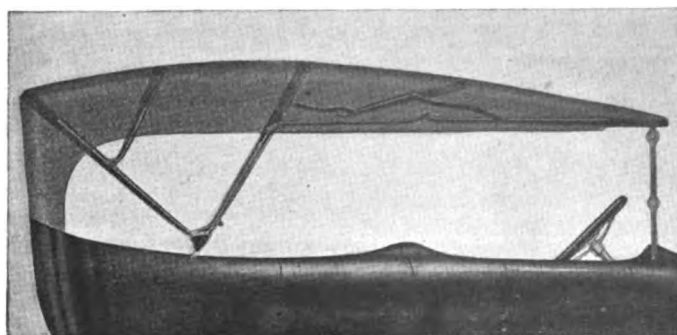
Twin tire rims for Ford, Chevrolet and Saxon cars are being made to take the place of demountable rims for the special use of the small-car owner. A display stand is furnished with each dealer's order for three or more outfits. The design fits both front and rear wheels, and is furnished for 30 x 3 or 30 x 3½ sizes. Price, \$7.50.—Asche & Co., Inc., New York, N. Y.

Marvel Tire Life

This is a liquid to be injected into a tire, and is compounded in such a way that it will not harden or become gummy for some time, but will remain in its original liquid state at uniform density for an indefinite time. When, however, a slow puncture is formed, the Marvel Tire Life, it is claimed, will form a thin protecting film through the action of the air stopping all leaks. One can contains enough for treating one tire. Price, \$2.50 to \$4.50 per can, depending on the size of tire to be treated.—Marvel Tire Life Co., Kansas City.

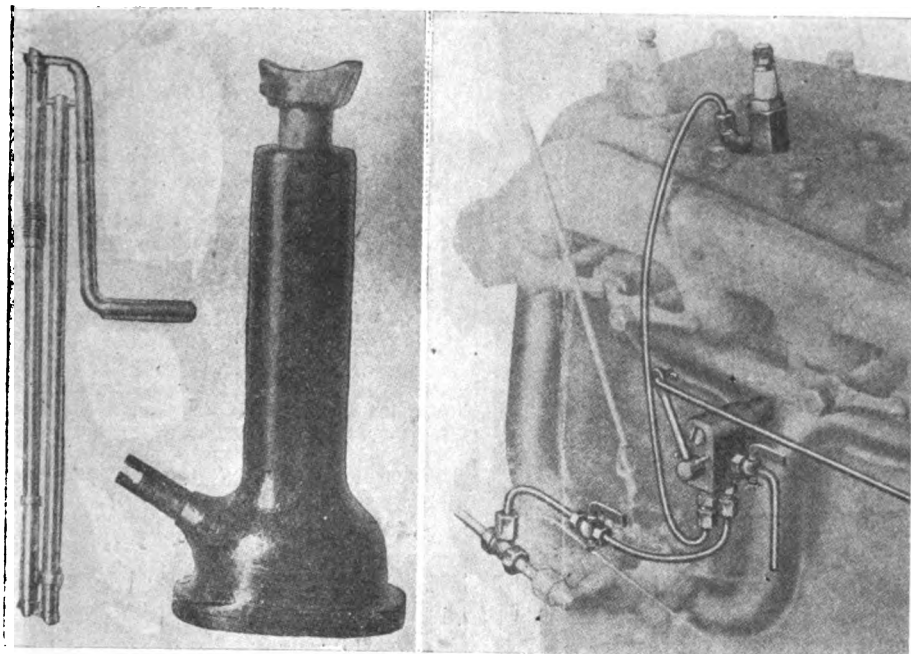
Common-Sense Shock Absorber

The main part of this device is bolted to the channel of the chassis over the center of the axle. It consists of a jaw through which passes a strap. One end of the strap is drawn around the axle and the other end is secured by a small spring to the channel of the chassis 4 in. forward of the point where the main device is bolted. When the car passes over a bump the coil spring pulls up the strap, and on the rebound the jaws



Above—The new A. W. convertible top

Left—A spring in the Brewer-Titchener bow helps lift the top



Gibraltar gear type jack

close, thus holding the strap fast and preventing a sharp return jolt. Price per pair, for light and medium-weight cars, \$10; for heavy cars, \$15.—Common Sense Mfg. Co., Newark, N. J.

Walden-Worcester Wrenches

Several of the former models of Walden-Worcester wrenches for Fords have been combined into new designs having several jaws, thus making new tools which do the work of a larger number of previous models.—J. H. Faw, Inc., New York.

Prismolite Sun-Ray Lens

The Sun Ray lens is a new Prismolite product which both diffuses and refracts the light, shooting a long, concentrated beam of road light ahead, but also giving the necessary side diffusion. Price, \$1.75 per pair.—Prismolite Co., Columbus, Ohio.

Eureka Rim Compressor

An all-steel Eureka rim compressor of entirely new design has been added to the products of this company. The new compressor works like a jack on the ratchet-and-pawl principle. It has a 22-in. handle, and may be folded up when not in use. Price, \$6.—Eureka Rim Compressor, Inc., Addison, N. Y.

Spoktite

Spoktite is a liquid to be applied to the points where wooden spokes are inserted in artillery-type wheels. The liquid is designed to keep wheels from contracting and expanding due to weather conditions. It is furnished in cans, each can being sufficient to treat four wheels. Price, \$1 per can.—Liquid Wheel Tightener Co., Modesto, Cal

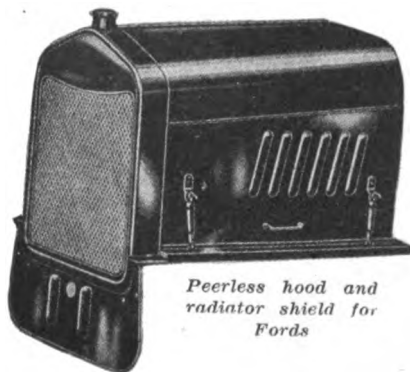
Gibraltar Jack

This is a gear-type jack operated by a long handle, which makes it unnecessary for the operator to reach under the car. The height of the jack, lowered, is 11½ in., and raised it is 18 in. It will lift a 3-ton car; weighs 9½ lb. Price, \$7.50.—Gibraltar Jack Co., New York.

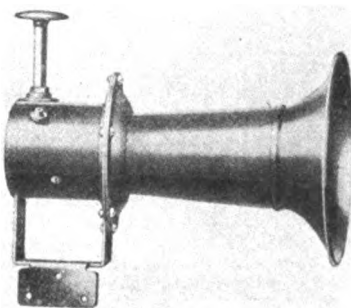
Cox's Reinforced Bumpers

The Cox line of diamond rail bumpers has been improved by the adoption of a rein-

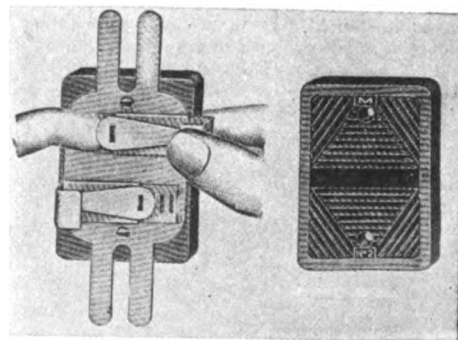
Smith Duplex priming system



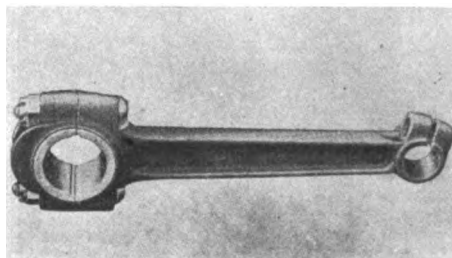
Peerless hood and radiator shield for Fords



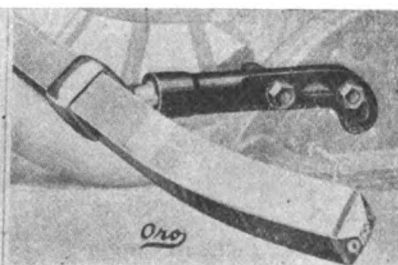
Admonitor hand signal



Rico adjustable pedal pad



Warnola connecting rod for Fords



Oro bumper clamp



Cox diamond rail bumpers are now reinforced with a central metal strip

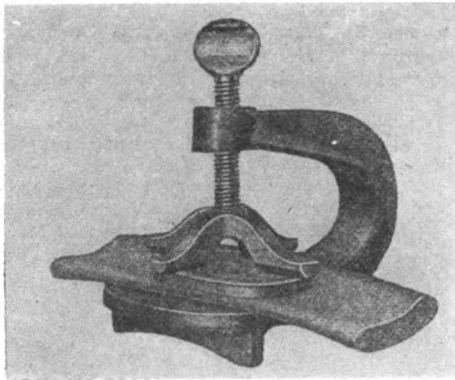
forcing metal strip, which is fitted into the bumper and extends for its entire length, excepting 2 in. on each end, allowing space for a special cap expander. The reinforced diamond rail is furnished in three sizes, 1¼, 1½ and 1¾ in. The cap expanders are new design for holding the bumper caps in place. The company is making new brackets for bumpers for Overland, Nash, Dodge and Paige cars, and rear brackets for bumpers on Maxwell, Cadillac, Packard and Marmon cars.—Cox Brass Mfg. Co., Albany, N. Y.

Rico Pedal Covers

Rico Pedal Covers of live rubber are now made with a mechanical adjustment, and may be secured by means of clips to all sizes of square and oblong pedals. Price per pair, \$1.75 and \$1.50.—H. C. Rich Auto Accessories Co., New York.

Warnola Products

Several new horns have been added to the Warnola line which was exhibited at the New York show. Among these is a model styled the "Admonitor," which is a hand-operated signal. It is furnished in either left-hand or right-hand models, although the left-hand type will always be supplied unless the other is definitely specified. The finishing is black enamel, and the construction is metal throughout. A feature of this model is its simple provision for oiling. All the oiling is done at one point, which takes care of the entire operating mechanism. Admonitor may be attached to any automobile by means of a metal bracket which is included in the outfit. The bracket has a side plate, perforated with three holes, through which screws are inserted for attaching the outfit to a car. Price \$4.00. The Warnola catalog also contains a number of parts for automobiles. Among these is a connecting rod for Fords, which is a drop forging, bushed with babbit metal, machined and finished. Price, \$1.50.—Warnola Mfg. Co., New York.



National 5-minute vulcanizer

Foot Air Accelerator

This device, operated by a pedal from the driver's seat, is an air valve leading into the intake manifold and taking heated air from the exhaust manifold. It is designed especially for Ford cars. Price, \$6.—Foot Air Accelerator Co., Cincinnati, Ohio.

Ajax Watch Holder

The Ajax watch holder is a concave, nickel-plated metal ring, made to fit over the face of a watch, and punched with screw-holes, so that it may be screwed onto the dash.—Charles E. Miller, New York.

H. & N. Kerosene Carburetor

Unusual in design is the new H. & N. kerosene carburetor for Fords, Dodges, and Metz cars. This consists, in the main, of the standard H. & N. carburetor fitted, however, with a kerosene bowl, which draws fuel from the main kerosene tank, and a gasoline bowl which supplies the fuel from a small gasoline tank for starting. The intake manifold is heated by the exhaust pipe, but the engineers found that the heat needed for breaking up the kerosene was in danger of being too high and causing pre-expansion before the gas reached the cylinders, thus losing compression. The kerosene, therefore, is heated and then partially cooled by means of fins on the intake manifold.—H. & N. Mfg. Co., New York.

Smith Automatic Primer

The Smith automatic primer is a device which injects a spray of gasoline through a pipe at the top of one of the cylinders at the ignition point of one of the spark plugs. The mechanism requires a special type spark plug and an attachment on the intake manifold. Price, \$10.—Fred Smith, Stamford, Conn.

Sundermann BB Carburetor

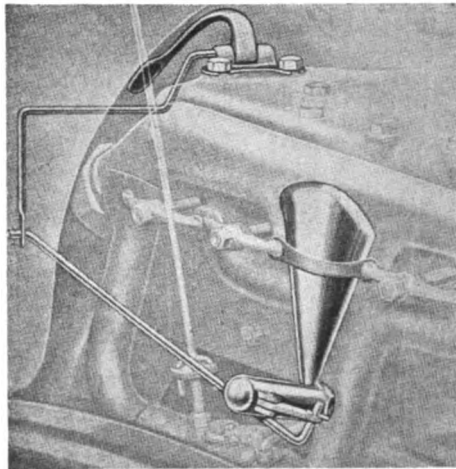
This new model Sunderman carburetor is similar in principle to the other Sunderman types, the chief change being that the tank is now under the jets instead of at the side of the carburetor. The new construction is designed to give a longer sucking distance, with consequent better vaporization, and as it gives greater depth, there is less chance of the well being sucked dry momentarily when the car is being tipped while rounding a curve or climbing hills.—Sunderman Corp., Newburgh, N. Y.

Magic Rubber Mend

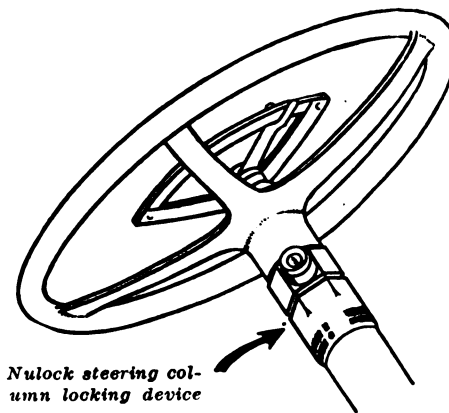
Magic Rubber Mend is a liquid designed to take the place of vulcanizing. Furnished in cans. Price, \$1.—Phillips-Hall Co., New York.

English & Mersick Products

Several new devices are shown by the English & Mersick Company, including pat-



Foot air accelerator



Nulock steering column locking device

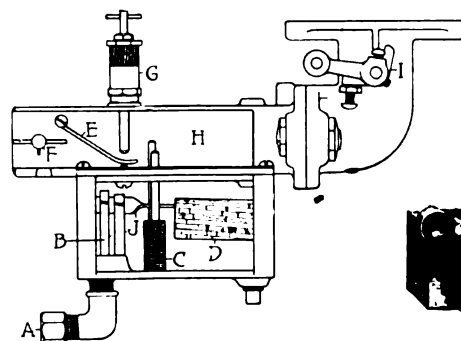
ent stump joints for landaulet, landau and Victoria tops, swinging-door fixtures and folding-door hinges.—English & Mersick Co., New Haven, Conn.

National Spark Plug

This plug has a ring instead of the usual style of electrode, the spark gap being continuous across the space between the ring and the outer shell.—National Motor Supply Co., Newark, N. J.

National Five-Minute Vulcanizer

This model has been changed by concaving the legs so that a circular as well as an oblong patch may be made conveniently and the appearance of the device is also thereby improved. An impregnated cardboard disk



The new Sunderman BB carburetor has the float beneath the nozzle

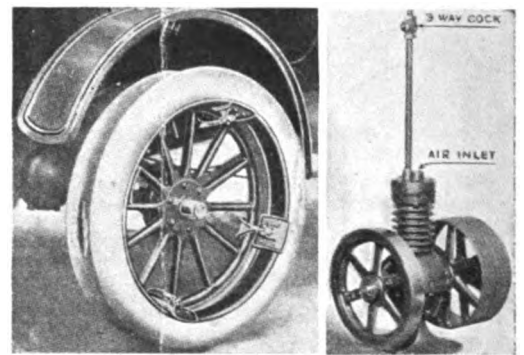
furnishes heat.—National Motor Car Supply Co., Newark, N. J.

Smith Signal Switch

A new single-handed switch has been introduced on Smith single lamps which performs the three operations by means of one handle. A motion to the left shows left on the signal, a motion to the right shows right, and when the switch handle is pulled out at any point it registers stop on the signal. A buzzer warns the operator any time the signal is in use.—Smith Signal Corp., New York.

Nulock

Nulock is a sliding metal collar which fits over the steering post, and when locked with a Yale key disconnects the steering wheel from the steering mechanism, allowing the former to turn freely. Price, \$14.50.—Nugo Device Corp., New York.



Twin spare rim for Fords Au-To Compressor

Saferlite

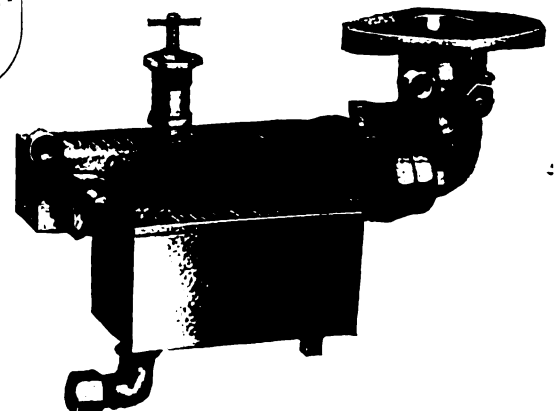
The new Saferlite deflecting lens uses horizontal prisms on the upper half of the lens and vertical prisms on the lower half. Electrical Testing Laboratories, New York.

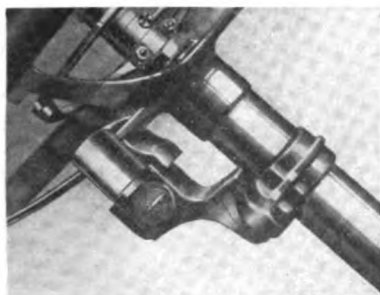
Au-To Air Compressor

A smaller model air compressor has been added to the line. It is of the same general construction as the other models except for the difference in size, the motor having a 2-in. bore and a 2½-in. stroke and a 12-in. flywheel. The overall height is 16 in., the maximum pressure 200 lbs., and the weight about 50 lbs. Price, \$50.—Au-To Compressor Co., Bloomington, Ohio.

Schrader Tire Accessories

Two new tire accessories have been added to the Schrader line. One of these is an extra length sliding dust cap to be used on wire wheels, where the tire has the stand-





ard length valve. The other is a change in the pump connection which now has an extra cup screwing onto the valve, which may be removed so that the washer is accessible. —A. Schrader's Son, Inc., Brooklyn, N. Y.

Oro Formost Bumper

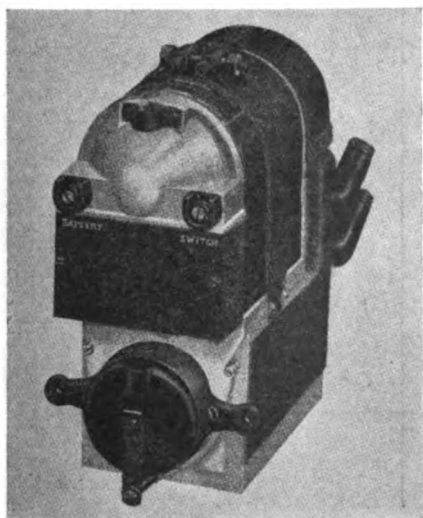
The Formost bumper of the Oro line is fitted with a special clamp which attaches to the springs of most cars, with the exception of Ford, Chevrolet, Saxon and Dodge. Price \$8.50 up.—Au-To Compressor Co., Bloomington, Ohio.

Derf Spark Plug

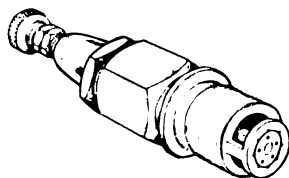
The Derf spark plug has 360 ignition points. The center electrode terminates in a disk.—Sales Service Co., New York.

New Goodrich-Lenhart Products

Three new products in the Goodrich-Lenhart are a steering column lock, a cut-out, and a thermostat for Fords. Deliveries on these will be coming through about Feb. 1. The lock consists of a patent clamp which fits over the steering wheel column and one of the wheel spiders; and is held in place by a Yale lock. The cut-out, which is described as a motor testing valve, has a bell-shaped mouth and is so constructed that it prevents all gas from passing into the muffler when closed. The thermostat for Fords is an automatic carburetor regulator which is inserted in place of the regular Ford carburetor needle. The automatic adjustment is caused by a coil of sensitive metal which contracts and expands in response to cold and heat, thus forcing the needle down or up in response to weather condition. The thermostat lists for \$5.—Goodrich-Lenhart Mfg. Co., Philadelphia.



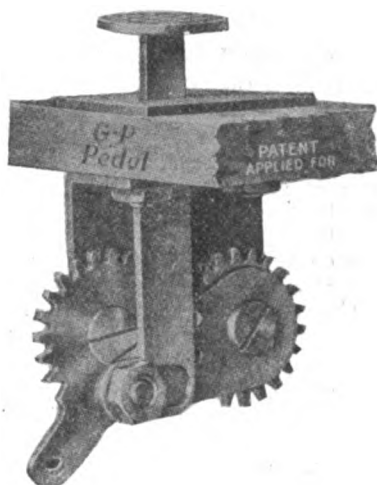
Elsemann combined magneto and generator



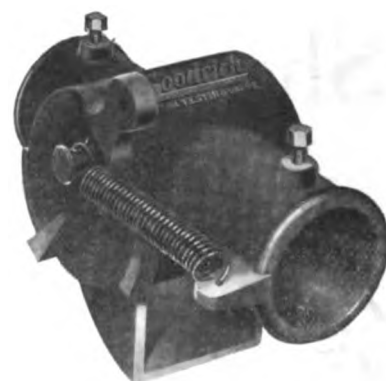
Left—Goodrich steering wheel lock.
Above—Derf 360-point spark plug.
Right—Goodrich muffler cut-out

Elsemann Magneto-Generator

This device is unusually compact and combines a generator with a magneto making a single installation which is interchangeable with the regulation magneto on a car. This mechanism utilizes the regular magneto drive shaft, the magneto bracket and even the same fastening screws. It is interchangeable with the standard magnetos on the market without requiring any change on the drive or bracket. The generator which is directly above the magneto is an independent unit, its excitation being electro-magnetic. It is made for 12 and 6-volt systems. The generator field coil is compound-wound with the shunt coil normally exciting the fields. The single wiring system is used. A switch panel in dull black is furnished.—Elsemann Magneto Co., Brooklyn, N. Y.



G. P. muffer cutout pedal



J. & B. Gasoline Injector

This is a priming device controlled from the dash, and takes gasoline direct from the gas line and delivers a rich mixture directly into the intake ports of the cylinders.—Price, \$3.50.—J. & B. Mfg. Co., Pittsfield, Mass.

New York Coll Ignition for Fords.

This is a new non-vibrating coil which cannot suffer from welding or sticking because a mechanical finger forcibly separates the contacts at the completion of each sparking period. The circuit is also made in a positive mechanical manner so that failure of operation cannot occur. The system works equally well on dry cells or storage batteries and provision is made for connecting either. The system is installed by removing the present timer and replacing it with an elevating gear bracket upon the top of which is mounted a high tension distributor. The present coil box together with all four units is discarded. A handsome panel containing a two point switch with removable keys occupies the position formerly taken by the coil box. Price \$20. New York Coll Co., New York.

G-P Pedal

The new G-P pedal for muffer cutouts is entirely steel and strong enough to operate any cutout spring. It is so designed that by releasing one screw it can be changed to lift or pull in any direction desired. Geared compound leverage makes it easy to operate. On the G-P pedal the locking device is on the bottom plate. Thus the pedal can be fastened to a steel or wood floor board of any thickness without altering its throw. It travels in a straight line and needs but one round hole drilled in the floorboard. Price \$1.50.—Edward A. Cassidy Co., New York.

Peteler Jack

This jack has several improvements over previous models. It has a telescoping feature which permits the jack to be either raised or lowered without the operator reaching under the car. There is a removable plate screwed on at one side of the mechanism which makes all the moving parts accessible. The lifting bar is of cold rolled, high carbon steel, the pawls are of tool steel, the other working parts of pressed steel, and the cap and casing of malleable cast iron. The base is of solid iron integral with the jack, which has a lifting strength of 3000 lb. The jack is made in two sizes, 8½ in. high with a 5½ in. lift; 10½ in. high with a 7 in. lift. Price \$6.—Coe-Stapley Mfg. Corp., New York.



Sternwear reinforced tube

Show Reveals Eight New Cars

- | | |
|-----------------|----------------|
| 1—Overland | 5—Templar |
| 2—Olympian | 6—Crow-Elkhart |
| 3—Owen | 7—Anderson |
| 4—Scripps-Booth | 8—Moore |

New models are not so many as in other years and those that are new show the refining hand of the designer directed toward greater economy, better appearance and more comfort

First Glimpse of the New Overland Four

THE Willys-Overland big production, low-priced four, which was shown for the first time three months ago at the Toledo factory in chassis form to a few inside observers, has been submitted to the eye of the public at the show. The complete car is not on exhibition but the chassis and an unfinished body suffice to give not only a clear idea of the construction of the new product but also of its complete appearance.

Its predominating feature from a construction standpoint is the skillful use of pressed steel in both chassis and body. Everything possible is made as a pressed part, giving the desired lightness and low cost. Another feature is

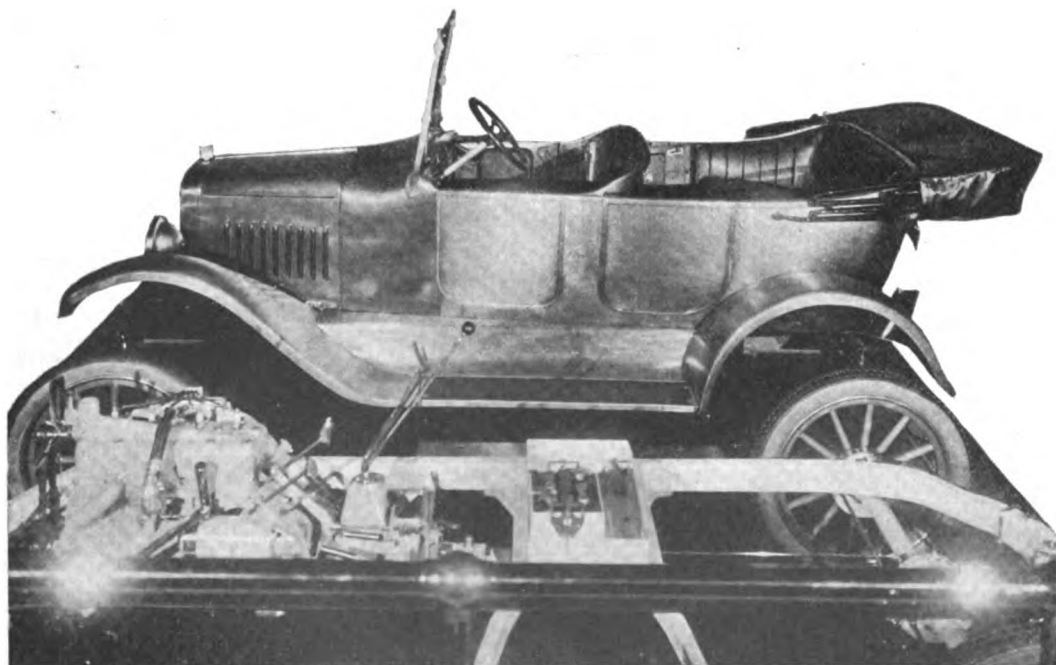
the extension of the chassis suspension forward of the front axle and behind the rear axle by the means of an overhanging form of spring arrangement.

A Really Big Little Car

The result is that the Willys-Overland company has produced a 1500-lb. car on a wheelbase of 100 in., with the equivalent of 130 in. in spring suspension. The frame side members are long pressed steel parts, spaced quite closely together, the distance from the inside of the channel side on one side to the inside of the opposite channel being 23 in. The depth of the channel member is $3\frac{1}{4}$ in. and the width across from the outside of the

channel flange on one side to the outside of the channel flange on the other is 26 in. These side members are rounded off front and rear, so that the form of the chassis frame is what might be roughly called a flat sided, narrow, continuous ellipse, the ellipse itself being 130 in. from end to end.

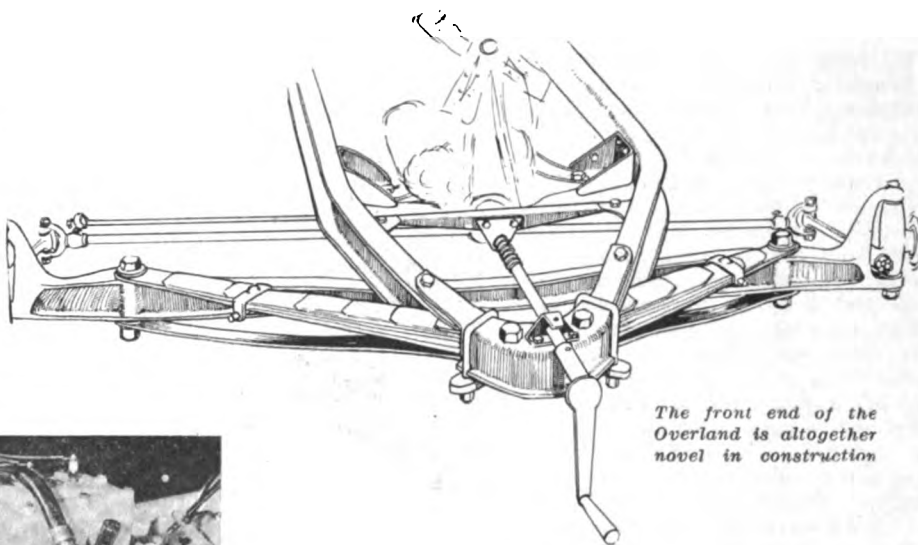
As the wheelbase is 100 in. the front and rear axles are both 15 in. in from the ends of the frame, this amount being represented by the overhang of the chassis. The springs are mounted in such a way as to connect the overhanging ends of the frame to the axle, this being accomplished by a horizontal V type of suspension at both front and rear. The



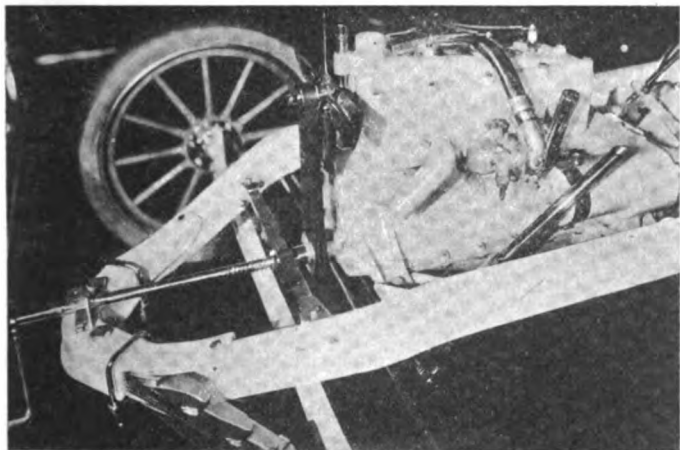
The new Overland Four has a slightly body built entirely of pressed steel for lightness and durability. Though the wheelbase is only 100 in. there is plenty of room due to the overhang of the body and the short hood

front springs being fixed at both the frame and axle and the rear springs being shackled on one side and pivoted on the other to take care of the movement of the body, the front axle member is thus relied upon to absorb directly the spring stresses by slight movements of the front axle from the vertical.

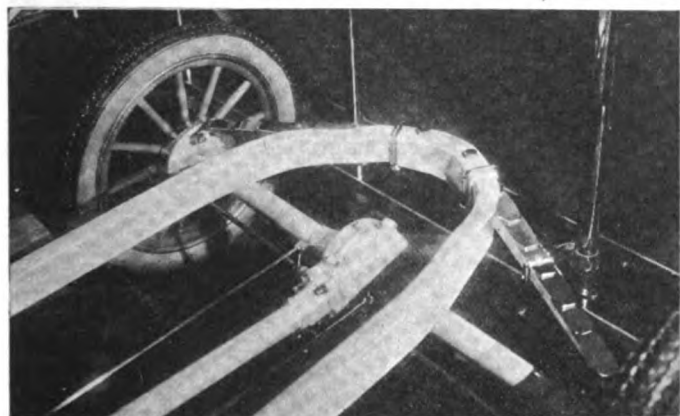
Outside of the radical departure from usual practice in the arrangement of the frame members and suspension, the car does not depart from standard design in its other features. A conventional type of block L-head four-cylinder engine is used with dimensions of $3\frac{1}{4} \times 4$ in. The valves are operated from a gear-driven



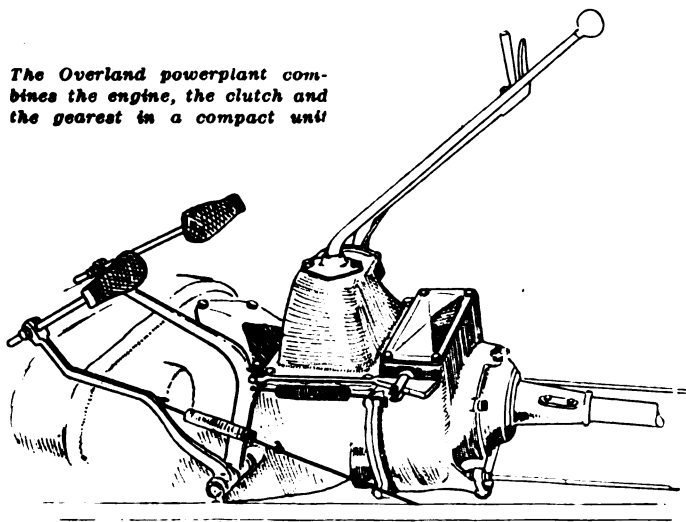
The front end of the Overland is altogether novel in construction



Here are the two ends of the Overland chassis showing how the springs have been arranged. The great amount of room on the short wheelbase chassis is made plain by these views



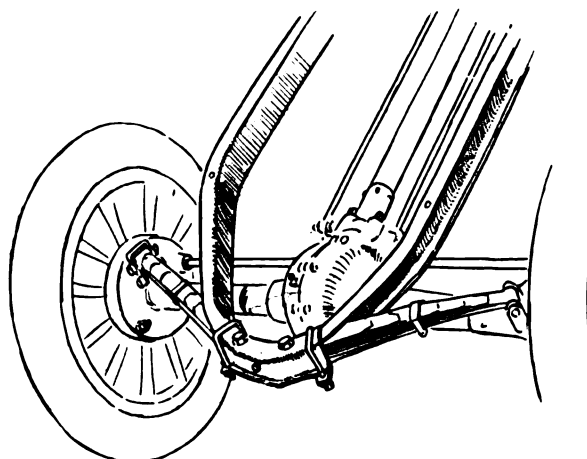
The Overland powerplant combines the engine, the clutch and the gearbox in a compact unit



camshaft through mushroom push rods. Cooling is by thermo syphon and oiling by a pressure-feed system, in which the oil is thrown by centrifugal force by the flywheel through an oil strainer and then to a lead to the hollow crankshaft. The hollow shaft also takes care of the lower connecting rod bearings.

The castings for the engine are arranged in accordance with up-to-date practice in L-head design. The cylinder head is removable and the cylinders are cast in unit with the upper half of the crankcase. This casting also carries the motor supporting feet at all four corners, giving a four-point rigid suspension. The waterjackets are large and in connection with a cellular tube radiator with a large tank at the top the cooling system holds a total of 7 gal., which is much larger than that employed in some cars of greater size. In connection with this radiator there is a fan driven by belt from a gear on the end of the crankshaft, and the tension on this belt is constantly maintained by a spring.

The complete electrical system includes Auto-Lite units for starting and lighting, and the battery equipment may be either U. S. L., Gould or Willard. The battery capacity is 60-ampere-hour. The motor and generator are mounted separately, the generator being on the right side and driven directly from the timing set, while the starting motor is on the



The rear of the Overland, too, exhibits some quite radical ideas in designing

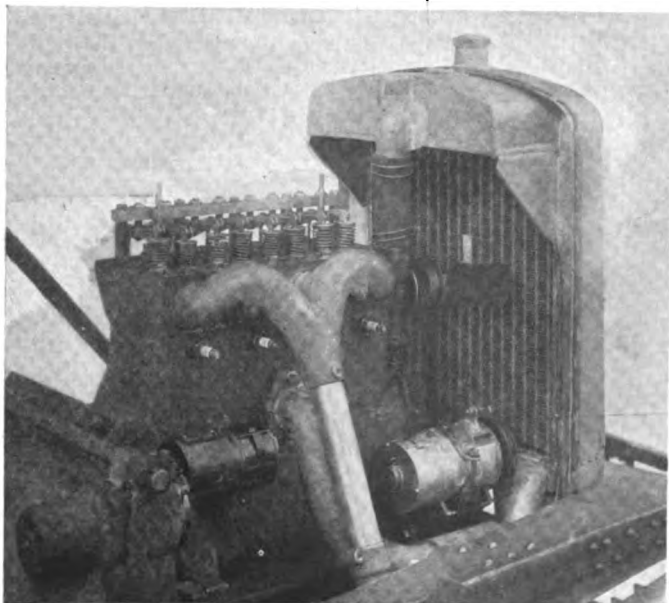
left side and is engaged with the fly-wheel by means of the Bendix gear.

The clutch and gearbox are mounted in connection with the engine as a unit powerplant. The clutch is an oil disk type, having three disks faced with Raybestos. It is housed within the fly-wheel and secures its oil from the supply which goes to the engine. In fact, the same oil lubricates the entire unit plant, flowing back also to the gearbox, which is a three-speed, sliding, selective type. From the gearbox the drive passes through one universal joint to the propeller shaft and thence to the three-quarter floating rear axle. This axle is in reality a single bearing floating type with a ball-bearing pressed over the outside of the axle housing, carrying the wheel, and a roller bearing at the differential end. The wheels are wood, carrying 30 x 3½ tires, non-skid in rear.

Two sets of brakes are used, the foot brake being mounted on the jackshaft of the gearbox, giving what is commonly known as a transmission brake, with the hand brake on at the rear wheels. The control members for operating the brakes and controlling the other functions of the car are placed in the customary manner.

Pressed Steel Body

The body is a production job as well as the chassis, being pressed steel throughout. The type shown is a five-passenger job and arranged with an apron-like projection in the front and a rounded off rear to accommodate itself to the overhanging frame suspension. The runningboards are supported from the chassis by two pressed steel U bars inverted to rivet to the frames, giving a substantial support to these boards. The color of the body is not fixed and there are some other details which are also to be settled upon before the car is put into production. For instance, the gear ratio on the model shown is 4, 73:1; this may be altered. It is expected that a definite move towards production will be made during the coming spring.



The spring suspension in the new Olympian is unique; the frame is the well-known Brush design

Overhead Valve Engine

Features New Olympian

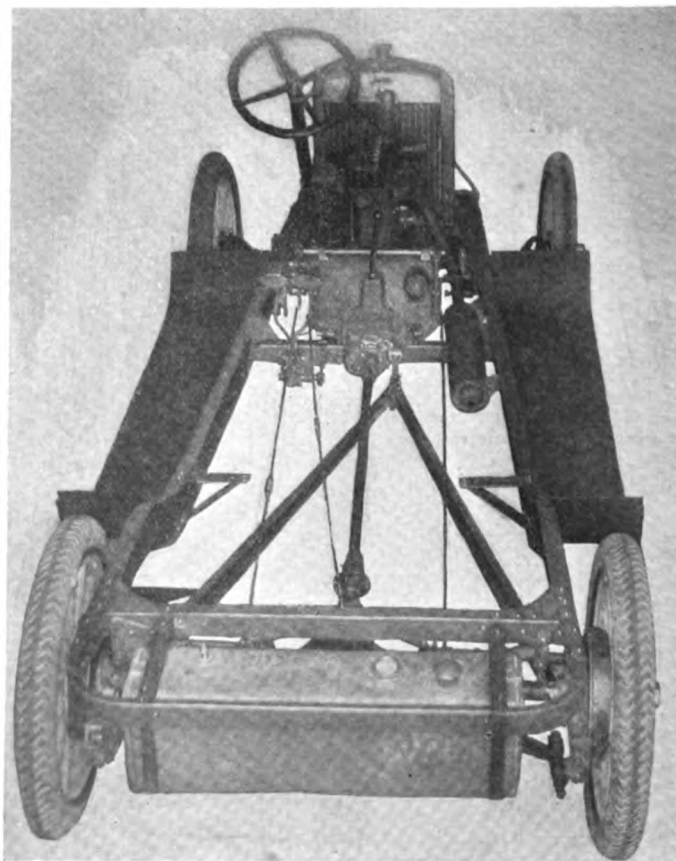
THE Olympian Motor Car Co., Pontiac, is exhibiting a new design throughout, and incorporates the features which have been associated with the Brush engineers such as the valve-in-head engine, deep frame construction in which the side members are formed by the splash apron, and the runningboards are also part of the frame structure, the full circle housing on the rear axle and the related features which go with this type of construction.

In addition to these features the drive units have been made stiffer by a trian-

gular layout composed of two torque arms coming together at their forward ends so that an equilateral triangle is formed by the two torque members and rear axle.

Mounted on a wheelbase of 112 in. the body is typical of up-to-date expression in economy of space. The cowl is so arranged that it takes up but little room and the gearshift lever is brought out from beneath the cowl with a bend which carries it directly to the hand of the operator. In place of the ordinary type of hand-brake there is a handle which operates on a pull rod through the dash so that the manipulation of the hand-brake is rendered exceptionally easy and accessible. A clear aisle is left across

The Olympian engine and the chassis are both very clean designs which have been developed for maximum efficiency and minimum weight



the width of the front seat by this arrangement of levers, so that in spite of the reasonable length of wheelbase there is more than a normal amount of room both front and rear.

The powerplant includes a four-cylinder engine, Borg & Beck clutch and a three-speed ball-bearing gearset mounted as a unit. The engine is a $3\frac{1}{4} \times 4\frac{1}{2}$ block four with detachable head carrying the Brush overhead valve gear, which is so designed that adjustments on the valve clearance can be made while the engine is running. An improvement has been incorporated in the valve action by using a full generated rocker pivot which adds to the life of the pivot point, and at the same time minimizes rocker friction.

Lynite aluminum alloy pistons are used and also a counterbalanced crankshaft fitted with counterweights, which are brought as closely as possible to the plane of rotation. The crankshaft has two main bearings and the diameter of the shaft at the front bearing is $1\frac{1}{4}$ in.; at the rear bearing the diameter is $2\frac{1}{4}$ in. The lengths of these two bearings are respectively 2.44 and 3 in.

Helical gears of $1\frac{1}{4}$ in. face width and 10 pitch are employed to drive the camshaft. The push rods are accessible for adjustment by the removal of detachable covers, which completely enclose the mechanism and aid in the retention of oil. The valves have a head diameter of $1\frac{1}{4}$ in. and a lift of .1875 in. on the cam, and this amounts to a lift of .375 or $\frac{3}{8}$ in. on the valve due to the multiplication by means of the rocker arm. The valves are operated by means of 35-lb. springs with an auxiliary spring having an additional load of 25 lb., giving a total of 60 lb. in valve spring action. The camshaft has a body diameter of $1\frac{1}{4}$ in. and is carried on three bearings having respectively diameters in lengths of $2\frac{1}{2}$ by $1\frac{1}{4}$, $1\frac{1}{4}$ by $\frac{3}{4}$ and 1 in. by $2\frac{1}{2}$ from front to rear.

The engine has been particularly designed from an upkeep standpoint, the removable valve-in-head action rendering the combustion chamber and valve systems readily accessible. The main and camshaft bearings can be reached by dropping the cam at the bottom, and it is possible to affect all necessary adjustments by these two methods without removing the engine from the chassis or tearing it down completely.

Lubrication is by pressure circulation with a gear pump, the oil being forced through the crankshaft to all the bearings. The oil flow is automatically regulated by the throttle through an interconnected link which works in conjunction with either the accelerator pedal or the hand throttle. There is a bypass controlled by a spring relief which holds the pressure to a predetermined amount. Carburetion is by means of a Stromberg instrument and ignition, lighting and starting is provided by separate Remy electric units. Cooling is by thermo-syphon and of a 4-gal. tubular radiator aided by a fan which is belt-driven from the front end of the crankshaft.

The 100-lb. flywheel carries an 8-in. diameter Borg & Beck dry plate clutch. The flywheel itself has an exterior diameter of 14 in. From this unit the drive is transmitted through a three-speed gearset unit mounted on S. K. F. ball bearings on the main shaft and plain bearings on the countershaft. Both these shafts are $3\frac{1}{2}$ per cent nickel steel. For final drive the gear rated at the rear axle is $4\frac{1}{4}$ to 1.

The propeller shaft has two universals and is relieved of torsional stresses by two pressed steel torque arms previously described. The rear axle is a three-quarter floating mounted on Hyatt bearings with a circular type of differential housing, to which the tubular shaft housings are bolted on either side.

The chassis frame is alloy steel having a depth of 6 in. and a horizontal width at the top flange of 2 in. The thickness of the side member is .109 in. and the runningboard, which is pressed steel, is a part of the frame construction. Springs are semi-elliptic front and transverse type rear, with the master leaf vanadium steel and the other leaves of high carbon steel. The length of the rear spring is $40\frac{1}{4}$ in. and of the front $32\frac{1}{2}$ in., the rear having eight leaves

and the front having six. The length of the upper rear spring is $40\frac{1}{4}$ in. and of the lower rear spring $44\frac{1}{4}$ in. The width of the rear springs are 2 in., and there are eight leaves in the upper half and nine in the lower. The front spring has a length of $32\frac{1}{2}$ in. and width of $1\frac{1}{4}$ in. and employs six leaves.

The wheels are wood, artillery type, with $32 \times 3\frac{1}{2}$ in. tires. The make of the tire is the Miller straight-side with non-skids used in the rear. One of the features of the chassis construction is the method of bringing the side members of the frame continuously around at the rear to form a bumper, which serves as a support for the gasoline tank and also markedly increases the rigidity of the construction.

The body is a five-passenger double cowl streamline type with slanting windshield. It is built in the Olympian shops and follows the somewhat angular line now in wide use. It is equipped with an electric light in the rear right-hand door for lighting the tonneau and entrance. There is also a two-passenger design of individual lines. The equipment includes a Boyce Moto-Meter, Stewart-Warner speedometer, bumper and a complete set of tools. The price is \$1,085.

Owen-Magnetic Has a New Engine

A NEW Owen-Magnetic which has been considerably revised and refined as compared with the last model is on exhibition. In body work it is probably one of the most distinctive types and carries out to a marked degree the tendency toward the beveled edge. The hood lines are beveled, as are the side rails of the body, and this beveled effect is carried around to the rear end so that it finishes off in the same angular style as characterizes the rest of the car. The price of the car with this new body is increased \$1,000 over the former price, being now \$5,475 as a touring car and \$6,500 as a limousine. These prices are delivered in New York and include the war tax.

Mechanically the most important development is in the use of a new overhead valve engine. There is also a better control, which more uniformly graduates the intermediate steps in speed control. The new control apparatus also permits of a better braking action by allowing the current of the motor, acting as a generator, to increase the field strength of the electrical driving unit, thereby giving an increased drag on the armature for more severe braking.

The new car is now 6 in. longer in wheelbase, being 142 in. as compared with 136 last year. This is made necessary by the rearranged body and larger engine. The new engine is a $4 \times 5\frac{1}{2}$ overhead valve six, with the cylinders cast in two blocks of three, the overhead valve construction being carried on a single detachable head which fits both cylinder blocks. The engine is capable of delivering 80 hp. on the brake, according to the claims of the makers, and is manufactured specially for the Owen-Magnetic cars in the R. & L. shop.

Both the upper and lower halves of the crankcase are aluminum castings. The upper half of the crankcase is a ribbed structure stiffened to support the main bearing and to carry the crankshaft load. The latter not only must perform the usual duties but must also support the revolving member of the magnetic clutch forming a part of the transmission which acts in place of the conventional flywheel. The pistons are ground and lapped into the cylinder and drive through drop-forged, oval-section connecting rods.

The camshaft and the water pump and magneto shaft are driven from the crankshaft by means of a timing set composed of three helical gears inclosed by the aluminum cover. The valves are tungsten steel $1\frac{1}{4}$ in. in diameter, and are used in connection with the overhead system carried in the detachable cylinder head. They are operated by drop forged rocker arms and push rods entirely inclosed by cover plates. These rods can be adjusted by removing the single aluminum top cover running the full length of the detachable head.

The exhaust from the engine is led in the manifold to the forward end of the engine and the exhaust pipe curves down from that point below the body, thus keeping the heat away from the front compartment. The intake and exhaust manifolds are both on the left side and the intake passages are arranged so that the single connection to the carburetor is cast integrally with the exhaust manifold and passes through it. This gives a highly preheated mixture and aids in the vaporization of the fuel.

Gasoline is fed by means of the Stewart vacuum system and ignition is by

a Bosch high tension magneto. Lubrication is by pressure feed, with the gear pump supplying the lubricant under a head of from 20 to 30 lb. at normal running. The pressure is proportional to the power requirement and the oil under pressure is taken directly to the camshaft rocker arm bearings and timing gears besides the bearings directly concerned with the operation of the crankshaft. Cooling is by centrifugal pump, the pump being on the same shaft as the magneto. A syphon thermostat is located at the upper tank of the radiator, checking the flow of the cooling water by means of a bypass until the proper running temperature has been reached.

There is no alteration in the electrical system other than in the control unit mentioned. The chassis frame has been strengthened to support the longer wheelbase and is now 8 in. deep, of pressed steel channel section provided with many stiffening cross members and gussets. Although the wheelbase is 142 in. the turning radius is but 24 ft. The rear springs are now 61 in. long and are underslung. The standard rim equipment is Firestone straight sides and the tires are 35 by 5 in. cord with ribbed front and non-skid rear.

Scripps-Booth Reveals

Five-Passenger Six

FOR the first time the Scripps-Booth appears in six-cylinder, five-passenger form. The familiar body lines which have created a name for distinctiveness remain, although they are modified to accommodate them to the new touring model. The new Scripps design is due without doubt to the definite inauguration of this concern as a part of the General Motors Co., and General Motors units displace the parts which were formerly purchased elsewhere. This is particularly true of the engine, which is now the Northway overhead valve six.

The new car, which is sold as a five-passenger for \$1,195, is mounted on a wheelbase of 112 in. It is equipped with a 2 13/16 x 4 1/4 unit powerplant, having its six-cylinders cast in block with the valves operated from a single camshaft which actuates a set of exterior side rods and then an overhead rocker arm valve set. The cylinder heads are detachable and are held in place by long studs, and there is in addition a cover-plate which incloses the valve action.

The intake manifold has a hot plate to aid in the evaporation of the mixture. The manifolds are at the right side and the exhaust from the two central cylinders is directly against the portion of the manifold around which the intake gases are led. The carbureter is a Marvel and is provided with a full hot air intake so that both the air entering the carbureter and the mixture entering the cylinders are subjected to the high exhaust temperatures before entering the combustion chamber.

Pump cooling is used, the water pump being driven off the fan belt, as both the fan and pump are on the same shaft. The belt is a notched type to give posi-

tive drive. The fan is what is known as the biplane type, being a three-blade unit, with each blade having two parts parallel to each other. Starting, lighting and ignition is Remy, and the fuel feed is by means of a Stewart vacuum tank in connection with a rear gasoline tank.

Power is transmitted through a leather-faced clutch having an aluminum cone with spring insert. The gearbox is a Warner Munsey type, with ball-bearings on the main shaft and plain bearings on the lay shaft. The propeller shaft has two universals and the drive is by the Hotchkiss system in connection with semi-elliptic springs. In addition to the equipment mentioned the list price includes Marshall upholstery springs and a Stewart speedometer.

Unusual Overhead Valve

Design in New Templar

A NEW car with a new design of overhead valve engine is being exhibited by the Templar Motors Corp., Cleveland. The car is an assembled product with the exception of the engine, which has been designed in the Templar shops and will be built by the company itself. The engine is a four-cylinder product of 197 cu. in. piston displacement and is claimed to develop 43 hp. at 2200 r.p.m.

The power plant is a detachable head unit with 3 1/2 x 5 1/2 in. cylinder dimensions. The valve action is a rocker arm type with the rockers covered by an aluminum housing. The vertical push rods operate in a hollow space, which is so arranged that there is a continuous oil vapor from the crankcase surrounding the valve action and keeping the parts lubricated. The valve rocker shaft is part of the pressure oil feed system.

The cylinder block is an iron casting and the crankshaft is aluminum. The pistons are cast iron and each carries four Wasson rings. The crankshaft has three main bearings and carries integral counterweights. The drive for the camshaft is taken off the crankshaft by silent chain. This chain also operates the generator shaft and the drive for the gear oil pump is taken off the camshaft.

Pump water circulation, Zenith carbureter in conjunction with a Copley primer and Remy electric equipment compose the auxiliary units. Fuel is supplied by the Stewart vacuum system from an 18-gallon supply tank with a two-gallon reserve.

The clutch is a Borg & Beck single dry plate with multiplying levers and ball bearing release. The drive is taken through a three-speed gear box operating on New Departure ball bearings to a hollow propeller shaft with two Schwitzer universals and a semi-floating American Ball-Bearing Co. rear axle. The springs are semi-elliptic front and rear, the length being 54 in. in the rear and the bushings are Nigrum oilless type. The tires are 32 x 4 Goodyear Cord, straight side. The five-passenger and the four-passenger are \$1,985, the Victoria four-passenger \$2,155, and the two-passenger touring-roadster \$2,255.

Crow-Elkhart, Too, Has]

Overhead Valve Engine

CROW-ELKHART has a revised car employing the new valve-in-head engine, which is being built by the Crow-Elkhart company itself. The engine is a rocker arm type, four-cylinder, 3 1/2 x 5, with a counterbalanced crankshaft having the counterweights electrically welded into place. The new car contains several changes in practice as compared with previous Crow-Elkharts. In the former L-head engine a two-bearing crankshaft was used, whereas in the new type there is an additional bearing.

Oiling is now by splash pressure, cooling by thermo syphon, and in place of the three-quarter elliptic springs, semi-elliptics are employed with a frame extension to take the place of the quarter which has been removed. Another big change is the abandonment of the rear axle gearbox and the substitution of the unit powerplant. In place of the clutch formerly made by the Crow-Elkhart company the Borg & Beck dry disc type is being used, and in place of a cowl gasoline tank the tank has been moved to the rear and Stewart vacuum feed employed. Other detail changes have also been put into effect, such as a sloping windshield in place of the vertical, a curved cowl, lower seats in the front compartment and twelve varieties of color offered as stock. The five-passenger touring car sells for \$935, the De Luxe touring at \$995, De Luxe Roadster \$995, Coupe \$1,295, and Sedan \$1,395. For \$100 extra a complete set of Houk wire wheels is supplied. The upholstery is either in Spanish brown or black long grain leatherette.

Larger Anderson Sport

Convertible Model Shown

THE Anderson Motor Co., Rock Hill, S. C., has a new convertible sport model which may be transformed from a roadster to a five-passenger model. The rear compartment can be closed over, thus forming a rear-deck roadster, or when it is opened it uncovers a rear compartment which allows of three additional passengers. This convertible model comes in two styles, one with divided front seats and the other with a solid front seat and entrance to the rear compartment through a door at the rear or to the right side of the car. The convertible feature of the car is patented by the Anderson company.

The convertible model with the rear door is a larger type than the one with the divided front seat and is known as the De Luxe. The engine is larger in this model, being the new Continental 9 N, 3 1/2 x 5 1/4 in. six-cylinder type. The other features of the car are similar to the standard Anderson product. The clutch is a Borg & Beck, the transmission is a three-speed selective, and the rear axle a Columbia.

One of the interesting features of the De Luxe convertible is the method of top adjustment for the roadster. There are

two pillars which are concealed in the body just behind the front compartment and a curtain top which pulls over the front compartment on a spring roller. The De Luxe Convertible sells for \$1,925; the convertible sport, \$1,465; four-passenger, \$1,465, and the sedan, \$2,165.

Holmes Air-Cooled

Car Shown to Public

AMERICA'S second air-cooled car, the new Holmes, about which there has been much speculation, quietly made its debut at a private exhibit this week. As was expected of the design of Robert Holmes, formerly vice-president of the Franklin company and for 7 years its chief engineer, the new car has a number of features which are the same in principle as those of the older one, but differ considerably in the method of their working out.

This is the product of the Holmes Automobile Co., Canton, Ohio, organized about a year ago. A production of 40,000 has been scheduled for the year with the first twenty cars coming through this month. The car appears as a seven-passenger touring and a sedan on the immediate program with a roadster to come through later. The price has not been fixed definitely but is between \$2,000 and \$2,500.

The method of cooling which has characterized Franklin practice, that is by means of a draft of air induced by a suction fan and led around vertically finned and separately cast cylinders is incorporated in the Holmes car, but instead of having the air jacket around individual cylinders the Holmes has its air jackets around all the cylinders. The construction of the cylinders themselves is similar to the older type, but the Holmes has removable cylinder heads of dome shape carrying inclined valves which are operated by a patented mechanism designed

to compensate more fully for elongation and contraction due to changes in temperature in the push rods. The valve mechanism consists of a connection between push rod and valve stem through two bell cranks and an adjustable linkage so arranged that even with the maximum elongation of the push rod there is less than .001 in. variation in the distance between tappet and valve stem.

The use of the dome-shaped cylinder head into which the valves are set at an angle permits exceptionally large valves, particularly, exhaust valves, and producing in addition to more power the more important factor with an air-cooled car, a cooler cylinder with minimum combustion chamber area. The removable head can be taken off by taking out four machine screws and one nut, which displaces the entire valve mechanism as a unit.

Details of the engine design aside from the valve mechanism and cooling arrangement include a six-cylinder individually cast engine $3\frac{1}{2} \times 4\frac{1}{2}$ in. Lubrication is pressure feed throughout by gear pump with oil leads to each main bearing. The crankshaft is drilled carrying the oil to the connecting rod bearing and oil is sprayed from these for piston lubrication so that the engine base is dropped.

The Sirroco type of induction fan, which is incorporated with the flywheel, draws the air through the louvers in the front and thence through an air jacket around all the cylinders instead of through individual jackets. This permits less space between cylinders, making a more compact engine with shorter crankshaft. The fan capacity is 2200 cu. ft. at 100 r.p.m.

Aside from the cylinder construction the car follows conventional lines having the usual channel frame, but the suspension is by means of elliptic springs front and rear. The bodies are exceptionally distinctive and the coach work

as a whole is unusually fine. The car lines are more nearly those of the water-cooled car having a rather high hood which slopes backward at the front somewhat like the Fageol radiator, although the hood is hinged at the dash as in Franklin practice. Air is admitted through the front to crescent-shaped louvers. The straight-line effect in a body is well carried out and a distinctive front fender is provided in the shape of a double curve.

In all other respects the car is conventional, some of the features of its equipment being a Newcomb carbureter, Eisemann magneto with governor controlled automatic advance and Dyneto single-unit starting and lighting system of the non-stallable type so installed that the starter chain may be tightened or loosened by merely revolving the starter and without affecting the alignment. Fuel is fed to a vacuum system from a 16-gal. rear tank. The multiple dry plate clutch and Brown-Lipe gearset are in unit with the engine and a Van speedometer and cord tires $34 \times 4\frac{1}{2}$ are included in the equipment. The lamps, like the rest of the body, are of special design and are distinctive in appearance. The wheelbase is 126 in.

Moore Touring Model \$695

THE Moore Motor Vehicle Co., of Danville, Ill., has on exhibition a car on a 106-in. wheelbase, selling for \$695. It is an assembled product with a Golden-Belknap & Swartz, four-cylinder, L-head engine, disc in oil clutch, Grant Lees three speed gearbox, Peru floating rear axle with Hotchkiss drive, and 30 by $3\frac{1}{2}$ tires. The car is furnished in either black or brewster green. In equipment the Dyneto lighting and starting is furnished in connection with an 80 ampere Willard storage battery. Ignition is provided by Dixie magneto. The car is mounted on cantilever springs.

Barnes to Sell Out

DETROIT, Jan. 5—The Barnes Foundry & Mfg. Co., Detroit, a \$2,000,000 corporation organized last July to manufacture cylinders, pistons and other gray iron castings, has decided not to go ahead with its building plans, and by a unanimous vote of its directors has determined to sell its real estate, which has increased largely in value.

War conditions and the uncertainty of business prospects in this particular line were responsible for the decision to dissolve the company at a time when plans were well under way for an extensive factory. This announcement is quite unusual from the fact that it seems certain that all the stockholders will receive all the money they have paid in, with interest. In fact, the checks for the last installment of the stock have been returned to the stockholders by the board of directors. It is anticipated that when the 34 acres of property owned by the company is disposed of, sufficient will be realized to repay to the stockholders all

the money that has been invested with interest and probably a profit.

The company, whose property is located next to the Great Lakes shipbuilding plant, one of the few available factory sites on the Detroit River, has among its directors some of the most prominent men in the industry. It was organized last July by Claire L. Barnes, who has spent about 15 months perfecting its plans. Mr. Barnes has not made any plans for the future, but expects to have all of the company's affairs cleaned up very shortly.

Trenam Plant at Stevens Point

STEVENS POINT, WIS., Jan. 3—The Trenam Tractor Co., Milwaukee, Wis., organized several months ago with \$400,000 capital to manufacture and market a farm and general purpose tractor designed by J. J. Trenam, has decided to establish its permanent plant and headquarters in Stevens Point, Wis. The company has purchased outright the en-

tire plant and holdings of the Central City Iron Works, Stevens Point.

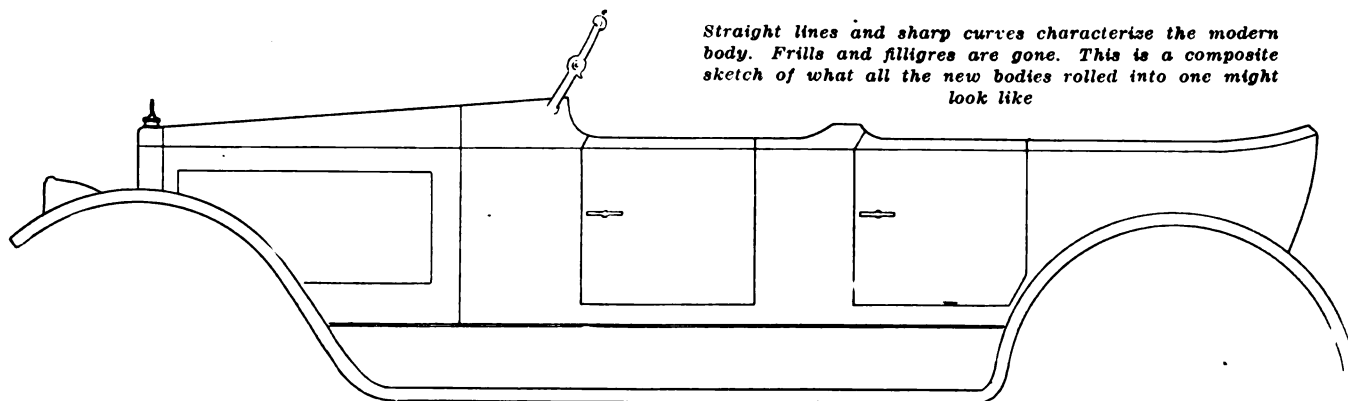
It is hoped to start a regular production of tractors by March 1. Five demonstrating machines already have been completed and subjected to exhaustive tests. The company will concentrate on one type, a 12-24 hp., serving as a power unit as well as a substitute for horse power. The officers of the company are: President and general manager, J. J. Trenam; vice-president, R. A. Cook; secretary and treasurer, F. M. Schuler; directors, G. A. Gullikson, Otto Lay and Dr. Conrad Tasche. Charles D. Lillie, formerly manager of the Chicago branch of the Seagrave Co., manufacturer of fire engines, Columbus, Ohio, has been engaged as sales and advertising manager.

PORT HURON, MICH., Jan. 5—The Mueller Metals Co. has received a contract for \$1,000,000 calling for the manufacture of gas shells for the French 75 millimeter guns. A new plant is rapidly being completed.

Straight Lines Displace Curves

In Modern Body Design

The Show Reveals an Increasing Uniformity in the Use of Good Ideas—Beveled Edges Replacing Round Ones



Straight lines and sharp curves characterize the modern body. Frills and filigree are gone. This is a composite sketch of what all the new bodies rolled into one might look like

TWO features stand out prominently in connection with the body designs which have been produced for the new year. One of these is the far greater uniformity which is apparent in the productions of different factories. The other is the very noticeable tendency toward the use of straighter lines and square corners. Curves are going fast.

Another dominating note which undoubtedly has brought about the increase in uniformity and which has served to accentuate the appearance of straight lines and square corners is the great increase in the number of "sport" bodies—that type of which the Hudson has been prominently among the forerunners.

Taken by and large, bodies are lower; they are slightly narrower; their side panels are lower; they are roomier; they should be more acceptable—or should we say desirable—to the prospect, and for this reason should be easier for the dealer to sell.

But of all these features, the one that stands out most prominently is the greater use of straight lines and square corners. And of the cars which show this movement away from curves to the greatest extent there are the new Owen-Magnetic and the Cole, though others show it only in a slightly lesser degree.

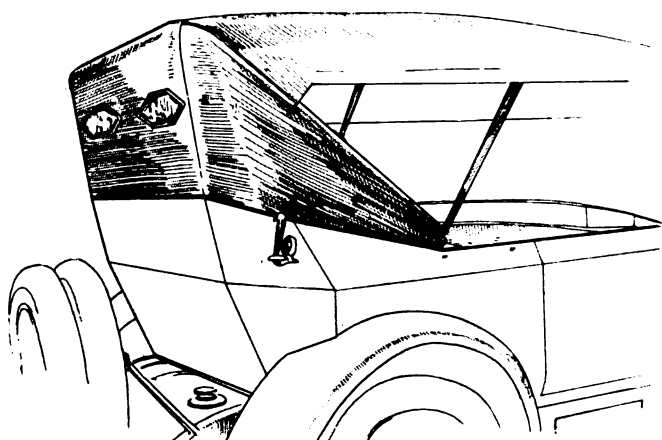
The Owen has the new beveled edge side panel carried to what is very nearly the limit. The length of the bevel is probably between 6 and 7 in., giving a sharply defined line below the top body line which is carried clear around the car. Even at the back the bevel idea is carried out, a feature which is far better made plain by the accompanying sketch than it could be by hundreds of printed words. All the other body lines, including those of the hood, are made to blend with this same straight line-bevel effect in a design which is as unusual and distinctive as it is new.

The Cole is not quite so severe in its adaptation of the straight line effect.

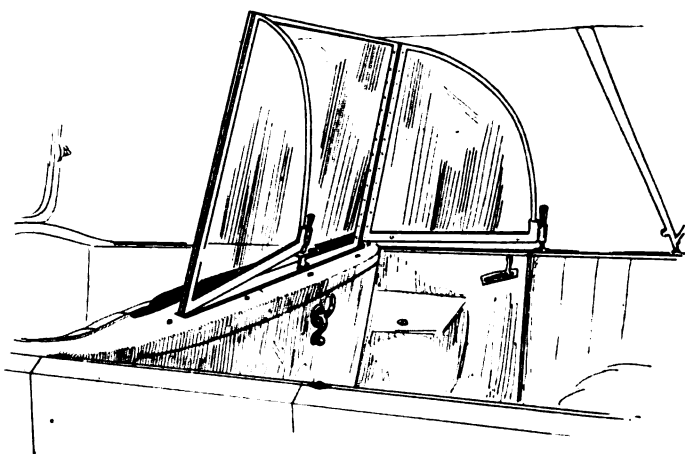
Here the top body line ends very frankly in an abrupt angle with the back of the body, there being an equally sharp line where the body sides join the back. This sharpness is particularly pronounced in a close-coupled four-passenger model. Other makers, too, have given excellent examples of the use of straight lines and sharp angles, among them being the Winton, which for the first time has departed very considerably from what has been previously accepted as quite correct in body design; Case, National, Stearns, Velie, Marmon, McFarlan and the new Silver special models, two on Apperson chassis and the others on Kissels.

The use of straighter top body lines has one big advantage that not every one appears to have thought of. It makes the attachment of a winter top a much simpler job for there is considerably less fitting.

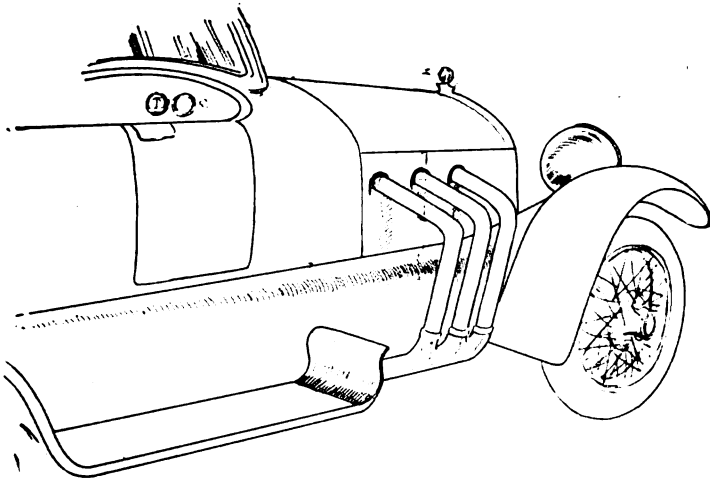
Coincident with the straighter lines has come a general lowering of the



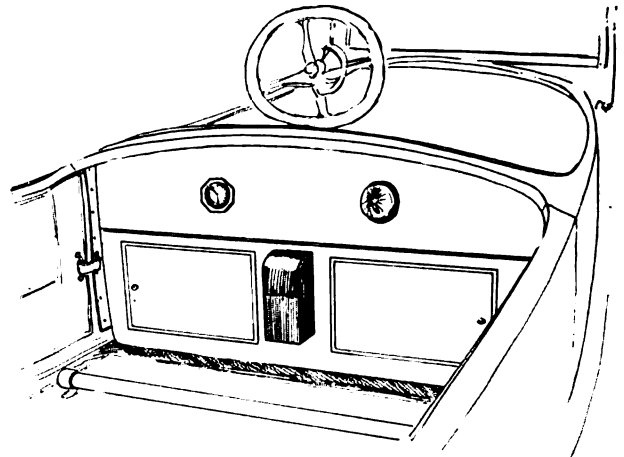
The new Owen has the straightest of straight lines and the sharpest of sharp corners



One of the Roamer models has an ingenious folding windshield which disappears in the body



Velie has achieved an altogether striking and original sport body



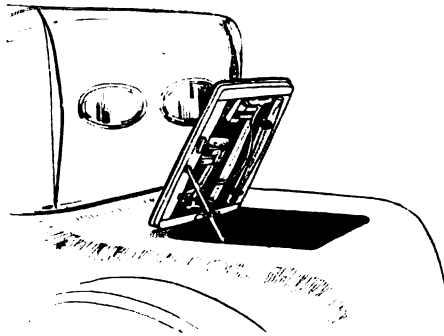
The Jordan Sport-Marine is one of the ultra modern "sport" models. The rear cowl has a clock, storage compartments and a kodak pocket

height of body panels, and this has had the effect of making the cars themselves appear lower; in fact, some of them are a little lower. McFarlan has a sport body which is perhaps the lowest of all those shown. In it the sides are scarcely high enough to hide the knees of the passengers, with the result that the car has a very racy, speedy appearance.

Another feature which has come with straighter lines is a narrowing of bodies. That is, the sides are flatter, and while actual measurements undoubtedly would reveal that overall dimensions are smaller, there really is more room in the bodies. Take the case of Saxon as one example. Here is a clever little convertible job in which the sides are perpendicular, and an end-on view gives an impression of narrowness altogether unusual. Yet the tonneau when opened for duty seats three on the rear seat, with two auxiliary seats. When the body is closed there is little to indicate that it is anything other than a conventional and good-looking two-passenger roadster.

A straightline hood, perhaps slightly higher at the dash than at the radiator, a sharp perpendicular break at the dash and a straight run back to the rear of the tonneau represents the modern sport body type. Frills and filigrees are gone.

Strange as it may seem, however, and in spite of the lower body sides there has been a very general return to the use of external door handles. And far from marring the appearance, they really



The tools are very cleverly stored in the new Scripps-Booth roadster

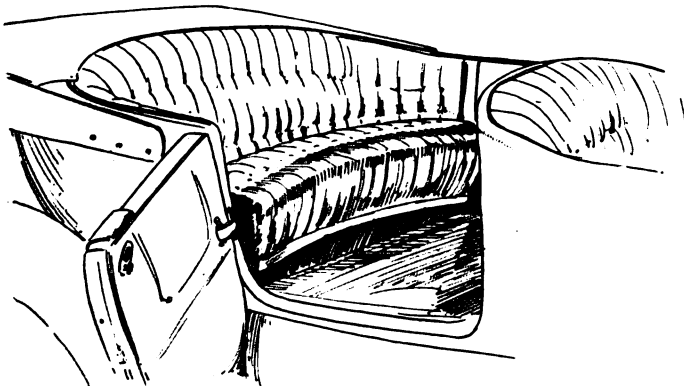
add that touch of finish which often has appeared lacking. Chandler has such a low, straight model in which handles are a feature, and nearly every other car of this type has them.

Among the altogether unusual body styles there might be mentioned the several Silver special models, some on Apperson chassis and others on Kissel

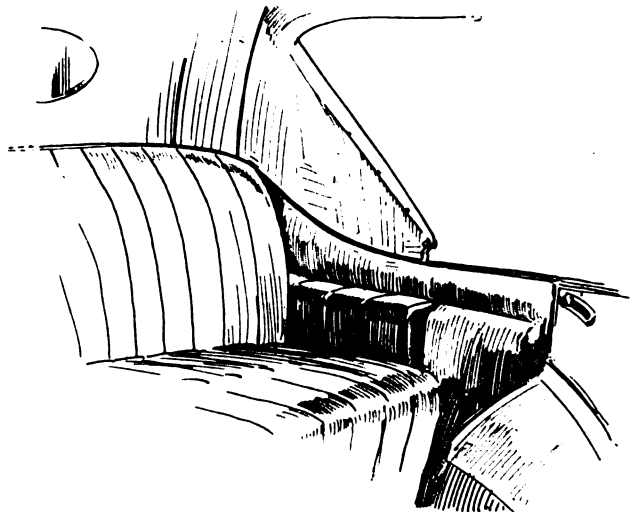
chassis, and a very curvy boat model exhibited by Moon. The Silver specials, designed by and named for C. T. Silver, Metropolitan distributor of Apperson and Kissel, are beautiful examples of coach work. In outline the bodies are ultra-modern and in fittings they are all that the most fastidious could desire.

There is a Silver-Apperson special sport model for example. The radiator is entirely new, is oval and is lightly convex. The body has almost severely straight lines and, of course, there are the distinctive Silver bullet lamps, even to the tail lamp. Fittings are polished nickel throughout, including the instrument board, and the top has bows of natural wood. Front seats are individual, and there is a single wide door at both sides which gives access to both the front and the rear compartment. It is evident that the whole design has been built up of ideas culled from the best to be found on the highest class coach work, with several new ones thrown in for good measure. And as a finishing touch to one of the models the upholstery is finished in silver throughout.

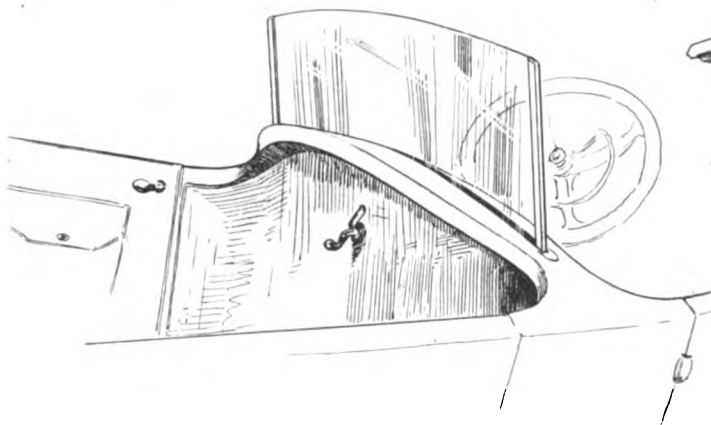
The other Silver models are no less elaborate in fittings and finish if slightly less daring in the carrying out of the designer's ideas. These are modern ex-



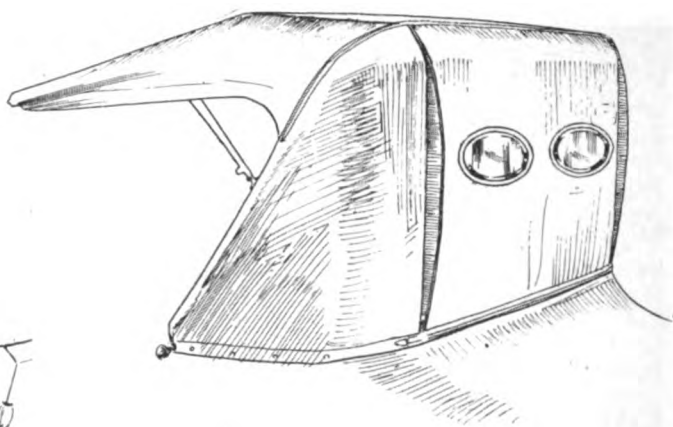
Departing from the straight line effect, Austin has a body which is nearly all curves



In the Kline there is a clever and altogether comfortable arm rest in the tonneau



This Roamer model has a different kind of disappearing tonneau windshield. It is a one-piece design



The pleats at the back of the Scripps-Booth top are reminiscent of the old victoria days

amples of the application of straight lines in a scientific manner.

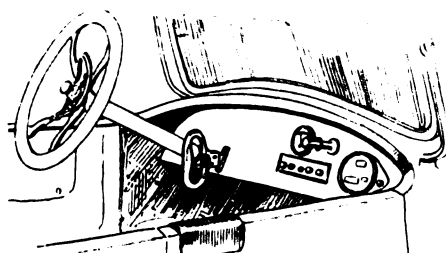
The Moon boat model goes to the exact other extreme from the straight line creations. It might almost be said without fear of contradiction that there is not a straight line in the whole design.

One of the really noticeable features of the show which lends a martial air to the exhibits is the appearance of steel wheels and disk wheels. The steel wheels are the products of the Detroit Pressed Steel Co. and the disks are made by the Chas. Schutte Body Co., Lancaster, Pa. Three of the models which appear with steel wheels are the Oldsmobile, the Paige and the McFarlan. A new Anderson De Luxe Convertible appears with disked wheels, as do two Saxons with special bodies exhibited by the Schutte company. Wire wheels, of course, are more numerous than in previous years, there being some 95 models so equipped and only 121 with the usual wood wheels.

In the matter of color, exponents of bright finishes and dark finishes are very nearly evenly balanced. For example, among the total of 110 cars finished in dark colors, 62 are black, 17 dark green, 15 maroon, 9 dark blue, 4 dark red and 3 dark brown. There are 105 brightly finished cars as follows: Twenty are tan, 10 turquoise blue, 16 light green, 13 grey,

10 yellow, 10 red, 5 white, 3 light yellow, 1 Nile green, 1 purple, 1 orange and 1 red, white and blue.

For upholstery, dull black leather, or something which so closely resembles it that no one but an expert could tell the difference, is the most popular. Eighty-five cars are so upholstered. Of the others, 53 are finished in cloth of some



The Olympian emergency brake lever is mounted on the dash

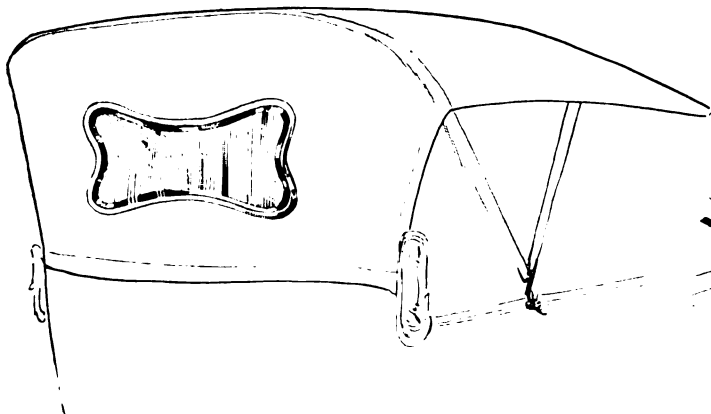
sort, 24 have bright black leather, 10 have bright leather of some other color, 7 have velvet, 5 broadcloth, 2 brocade, 2 corduroy and 1 cretonne. Only four cars on exhibit are fitted with slip covers.

Inclosed cars as a whole do not evidence any great development of line as compared with recent years. There does seem to be some improvement in the fittings and finishing. Little things such as anti-rattlers for the glass work are

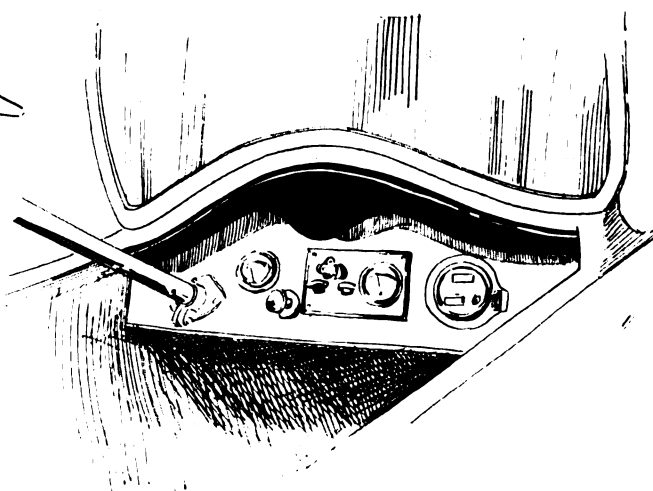
more in evidence, and a certain step in the right direction, particularly in the class of cars in which all the glass work disappears, as a tendency to rattle has been one of the disadvantages of this type of construction. The only new lines in the inclosed bodies are in evidence on a Hupmobile sedan, in which the vertical edges at the rear have a decided bevel so that it gives a somewhat octagonal effect to the rear view of the car.

Pierce-Arrow has a well-designed coupe model in which there is a new type of tilting wheel, and the driver's seat is mounted on tracks and can be moved back out of the way to increase the entrance space.

The electrics, as usual, are given a prominent place, and though most of them, including Detroit, Milburn, Ohio and Baker-R & L, exhibit detail improvements, none exhibits such a radical departure from previous practice as does the Milburn. In appearance, this car is almost an exact duplicate of a high-priced gasoline limousine. In other words, there is the same straight line effect and the same pattern of hood and radiator, only in this case, of course, there is no radiator at all. Nearly all the battery is carried under a hood at the front, there being only a comparatively small amount at the rear in the usual location.



Johnston plate glass curtain windows are a feature of a great many cars. Chandler has one of the largest rear lights



Another clever feature of the Scripps-Booth is the arrangement of the cowl to hide the instrument board light

How Design Has Been Improved to Give Greater Economy

Better Utilization of Low Grade Fuel, Engine Size and Wheelbase, with More Room in Driver's Compartment, Features of 1918 Cars

FROM a technical standpoint the lesson carried home to dealers by the show is that cars are more economical now than ever before. The influence of the war has had a marked effect on design, and where new construction has been brought out a strong leaning toward the economy features in arranging the specifications can be noticed.

Overhead valves, hot-spot intake manifolds, lightweight parts, pressure feed oiling, more economical use of engine size and wheelbase and a score of other features all tending to secure the greatest possible performance out of a given quantity of fuel oil or rubber will be the predominating features of 1918 cars.

Economy the Watchword

This influence of economy is not only noticeable in the various chassis components but is also of marked influence in the determination of body features. Weight has been cut from bodies and at the same time they have been made more rattle-proof and more comfortable. Furthermore, it has been possible through more scientific design to secure an increased amount of body space on a shorter wheelbase. This has been done by decreasing the length of the hood and cowl and in some cases by changing the cowl tank for one in the rear, using a vacuum feed in place of gravity.

There is no doubt that the heavier grades of gasoline have had the greatest influence on the design of the new cars at the show. Hardly a car is on the floor which has the same intake manifold as it had a year ago. The necessity for utiliz-

Results

Economy of operation and maintenance is the keynote of the 1918 car.

Improved intake manifolds have practically solved the heavy fuel situation.

Overhead valve engines have increased because of high output for size.

Pressure feed oiling is used more than ever, giving longer bearing life.

Oil cups in place of grease cups give more positive winter lubrication.

ing the intake as a medium for breaking up the fuel and also as an aid to quick warming has been realized to such an extent that exhaust or waterjacketed intakes are on every hand. The primary air entering the carburetor is still heated by the exhaust manifold stove as in former years, but in addition the mixing chamber and the passage between the mixing chamber and the combustion chamber are also warmed either by utilizing the exhaust heat, as in most instances, or in using the cooling water as is done by a few cars.

The overhead valve has been endorsed by an increased number of concerns this

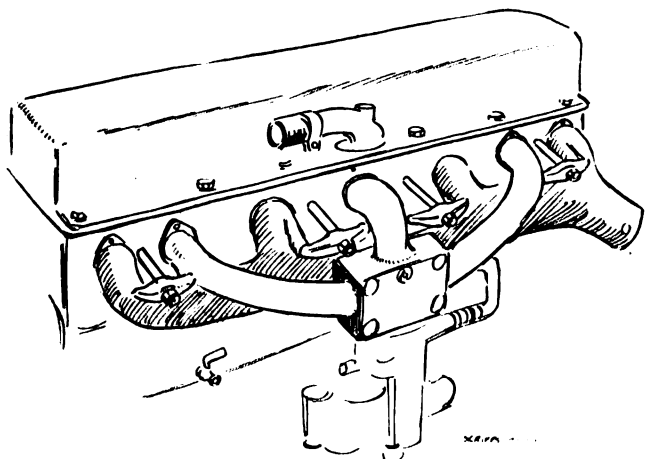
year. At the show concerns like Scripps-Booth, Owen Magnetic, Crow-Elkhart, Olympian and Templar are exhibiting new cars all of which are fitted with overhead valve engines. The advantageous combustion chamber space permitting the highest possible output from a given displacement has been one of the fundamental reasons for the adoption of this type. The old objection of noise has been overcome by inclosing the rocker arms and other parts of the valve-drive system.

On the Scripps-Booth the housing is bolted securely to the top of the engine and in addition to this there is a removable cover plate which can be quickly taken off by turning two thumb nuts.

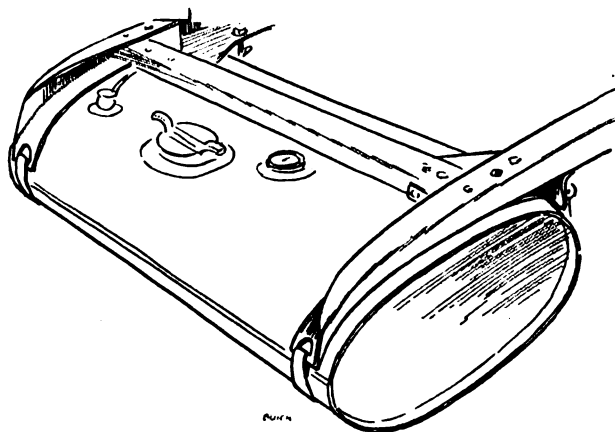
Overhead Valves Increase

Gasoline economy is also claimed with the overhead type of valve action due to the fact that there is little loss of effect of area in the combustion space and consequently the greatest possible use is made of the heat available. This type is also more accessible in that the cylinder heads containing the valve action are removable.

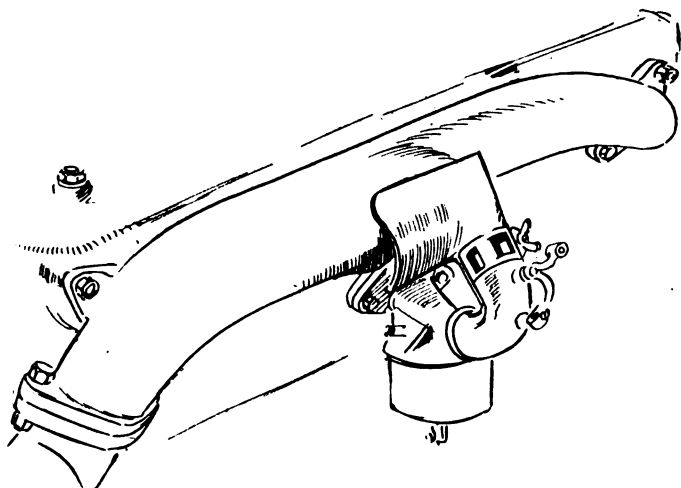
There are two cars at the show this year which have given up the rear axle gearbox, one of them being the Crow-Elkhart, which is entirely new, having been first disclosed at the show, and the other is the Studebaker. The Studebaker has adopted the amidship gearbox, while the Crow-Elkhart is now fitted with a unit power plant, the engine being a new overhead valve which is to be made in the Crow-Elkhart shops.



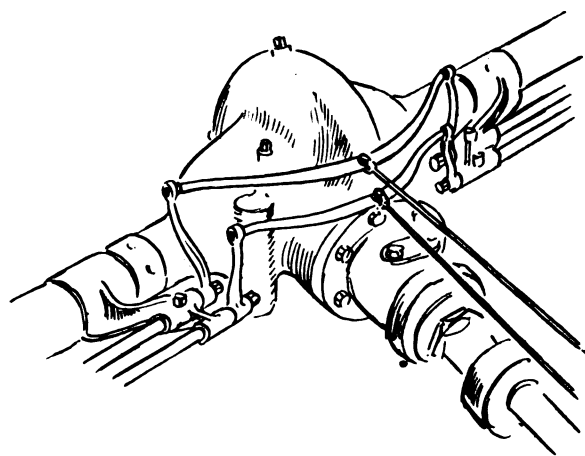
Scripps now uses the Northway overhead six



Buicks will not shake their tanks on the road



Elcar uses exhaust heat with this new stove



Simplified brake construction with double equalizers on Elcar

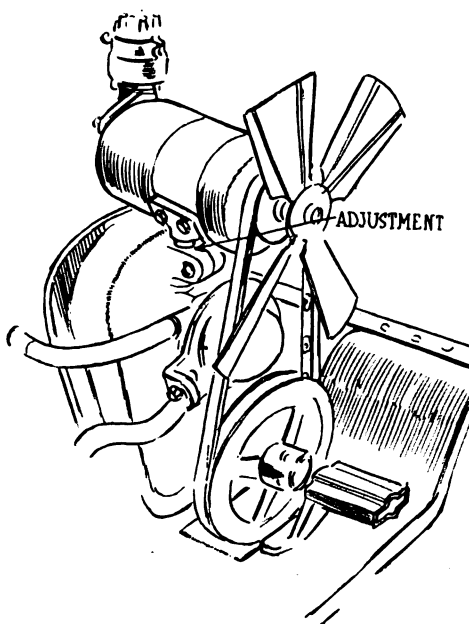
Hot spot intake manifolds are being made a strong talking point by some concerns which claim that due to the type which they have originated the damp gases are more thoroughly broken up and vaporized than with the more conventional types of manifold. The practice generally followed is to permit the intake gases to strike against an exposed part of the exhaust manifold which is subjected directly to the heat of perhaps two of the cylinders.

In a great many of the installations where the exhaust valves of the two central cylinders are close together at the middle of the block, the hot spot is quite close to this point. On the Winton a new intake manifold has been installed in which the water is led around the mixing chamber above the carburetor so that the temperature is not quite so high as with the exhaust heated manifolds.

More Pressure Feeds

Increasing engine speeds and increasing crankshaft diameters have combined to accelerate the trend toward pressure feed oiling. This year several makes of cars which formerly used pressure feed only to the main bearings and oiled the rest of the moving parts by splash, have now gone to a more complete pressure feed in connection with a hollow crankshaft. The shaft is drilled through the crank cheeks carrying the oil to the lower connecting-rod bearings which are

lubricated to such an extent that there is an excessive supply which can be thrown off to take care of the other parts of



Fan and generator combined on Oldsmobile

the engine such as the camshaft, pistons, and piston pins.

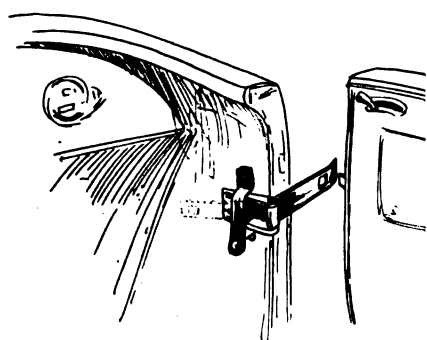
A feature of overhead valve oiling which is new has been installed on the

Templar engine. The space through which the vertical pushrods operate acts as an oil passage permitting the oily vapor from the crankcase to reach the rocker arm bearing points thus cutting down wear and promoting life at these points. On this same engine the rocker shaft is made part of the pressure feed system so that a complete system of valve mechanism lubrication has been worked out.

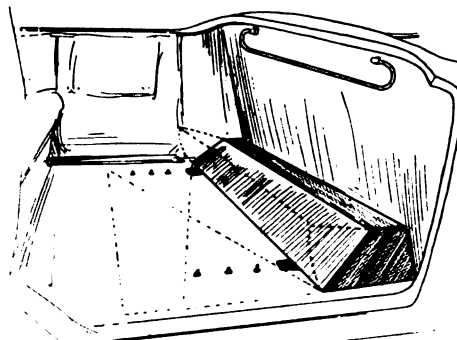
Better Spring Suspension

Improvements in spring suspension are more a matter of detail this year than of radical refinement. The semi-elliptic spring has increased in connection with the growth of Hotchkiss drive in which both the propulsion and torsional components of the rear axle are taken through the springs. On the Crow-Elkhart, for example, the three-quarter elliptic rear suspension has been supplanted by the semi-elliptic with an extended frame end which supplants the upper quarter of the spring. This same drive is familiar through its successful use on the Hudson car during the past few seasons.

In connection with the desire to keep the car as low as possible, a large proportion of rear springs are being underslung. This construction taken with a spring that is designed to be quite flat under load gives a low hung appearance to the body which permits of very attractive lines.



Open door policy on Studebaker secures ventilation



In the Kline footrest there is a receptacle for packages

One of the most important features of the year's development as exemplified at the show is in the better layout of control members. Gearshift levers are higher and closer to hand and emergency brake levers are also improved in this respect. This not only makes the car easier to drive but it is also easier to enter and easier to leave. One of the best examples of re-design in connection with the front compartment is in the new Hupmobile model R where a 112-in. chassis is being fitted with a body which has an equal amount of room in the rear as the car had on a 119-in. chassis and 2 in. more room in the front compartment than on the former chassis in spite of the fact that it was 7 in. longer.

Economy in car design does not stop at efficiency in operation but is also related very closely to economy in upkeep and in reduced cost of maintenance. Some of the factors which are seen on every hand, and which deal particularly with this phase, are the substitution of oil cups for grease cups, the simplification of necessary drives, the combining of units such as the fan and water pump, fan and generator, generator and distributor head, etc. It is now possible to make easy adjustments on these units, and in some cases to even remove the fan and other front end parts without having to take off the radiator.

Another point which has been studied from the viewpoint of maintenance, is the adjustment and repair of engine parts. It is now possible on practically all cars to withdraw the pistons together with the connecting-rod assembly through the bottom of the crankcase by simply removing the bottom pan of the engine. This allows the piston to be pulled out past the crankshaft, which does not have to be disturbed in order to make the required repairs. This is a marked advantage because where it is necessary to take out the crankshaft the alignment of this unit is nearly always disturbed with the result that considerable work has to be done on the main bearings in addition to the work on the particular part which had to be repaired.

Economy of space, operation and maintenance are the great factors of the 1918 car. It is in these developments that practically every car on the market has improved itself and will answer the chief demands of buyers for this year.

1500 Farm Tractors for France

WASHINGTON, Jan. 3—Fifteen hundred farm tractors will be sent to France by the Food Administration. All will be over-seas for spring plowing in March. It is estimated that this increase in the French food supply, through greater efficiency, will release 2,000,000 tons of shipping in 1918 that otherwise would be needed to transport food. France in 1917 had 30,742,157 acres of crops, compared with 40,557,293 in 1913. The total food crop in 1917 was 24,581,290 tons, as compared with 30,462,340 tons in 1913. The tractors will enable the French to plant 500,000 additional acres of potatoes and an extra million acres of wheat.

The plan for sending the tractors was conceived by Henry Morgenthau and his

Statistical Picture of the Show

	Garden and Palace 1913	Palace 1914	Palace 1915	Palace 1916	Palace 1917	Palace 1918
Total Exhibitors	424	349	317	391	323	331
Car Exhibitors	89	78	80	84	95	79
Accessory Exhibitors	320	259	223	306	227	252
Motorcycle Exhibitors	15	12	14	1	1	0
Grand Total (Cars and chassis together)	0	2	0	0	0	0
Two-cylinder	202	162	126	116	120	82
Four-cylinder	112	116	134	135	143	155
Six-cylinder	0	0	8	41	47	36
Eight-cylinder	0	0	0	13	15	9
Twelve-cylinder	0	0	0	0	2	4
Steam	10	17	15	17	13	11
Electric	0	0	0	0	0	0
Total	324	297	283	322	340	297
GASOLINE CARS						
Touring	162	143	124	117	128	132
Roadster	49	50	48	75	67	40
Limousine	23	15	18	11	16	8
Berline	8	6	2	1	0	2
Coupe	19*	17	7	6	6	13
Phaeton	1	2	1	0	6	0
Landaulet	0	1	1	3	3	0
Raceabout	2	2	3	2	0	0
Sedan	2	2	3	2	0	43*
Town Car	0	0	4	5	12	11
Total	266	265	221	251	272	252
ELECTRIC CARS						
Coupe	7	2	1	11	8	9
Cabriolet	0	0	1	1	0	0
Roadster	3	1	3	1	1	0
Town Car	0	1	1	0	1	0
Limousine	0	0	1	0	0	1
Sedan	0	0	0	0	0	1
Total	10	4	7	13	10	11
CHASSIS						
Four-cylinder	27	21	20	19	26	12
Four-cylinder (sleeve valve)	0	0	0	3	0	0
Six-cylinder	21	15	26	19	18	16
Eight-cylinder	0	0	1	8	6	4
Eight-cylinder (sleeve valve)	0	0	0	1	2	0
Twelve-cylinder	0	0	0	4	1	0
Steam	0	0	0	0	0	2
Electric	1	1	4	2	1	0
Total	49	37	51	56	54	34

*Includes Convertibles.

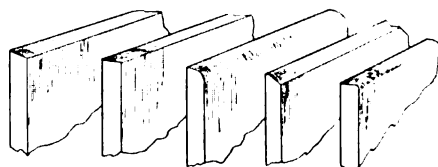
son, Henry Morgenthau, Jr., the latter of whom will supervise the delivery of the tractors in France and establish schools to train older men and women to use them. The French Government has accepted them and they will be distributed by the French Minister of Agriculture. The National Implement and Vehicle Association approved the plan and gave assurance that it would not interfere with American farm production.

Has Weekly Auction Sales of Cars

NEW WESTMINSTER, B. C., Jan. 4—Auction sales of automobiles are now being held weekly at the city market. Friday morning is the regular market day in the Royal City on the Fraser, and many farmers are taking advantage of the opportunity to secure a used car at their own price.

Baker Brings Out Three New Models

CLEVELAND, Jan. 4—The Baker R. & L. Co., manufacturer of the Rauch & Lang electric car, has brought out a new model chassis styled the W-42. It has a wheelbase of 142 in., with a radiator



A few of the 57 varieties of body edge

hood and new body design. The construction of the chassis is practically the same. Among the improvements is a more powerful motor. Three body styles are offered—the touring car, sedan, and limousine.

50 Trucks Overland for New York

BUFFALO, Jan. 3—Fifty army trucks left Tuesday overland for New York. This is the largest convoy ever started out in this way. The convoy of trucks which recently went from Michigan to the seaboard numbered 30. The first truck is fitted with a snowplow and the engineers were fitted out with winter clothing by the Buffalo Red Cross. Captain J. D. K. Loach, Twentieth United States Engineers, is in charge of the trucks and the 92 men who operate them.

Coal Still Worries Detroit

DETROIT, Jan. 5—The coal situation still occupies the center of the stage, and receipts have dropped off in the past week. Last week something over 500 carloads were received, but this week only about 150 carloads arrived. Manufacturing plants are still running, with limited supplies, and relief is looked for through Government control of the railroads. Flint, Jackson and Lansing are possibly in even worse condition, and two Lansing factories will have to close this week if coal does not arrive.

Editorial Observation

The Gospel of Unsound "Economy"

IT is to be regretted that some of those connected with our Government still cling to the mistaken idea that if we are to produce goods for the winning of the war we must curtail some of our most essential industries. One of the exponents of this negative policy oftenest quoted to-day is Frank A. Vanderlip of the National City Bank of New York. He is preaching a gospel of economy in order to promote the sale of war thrift stamps. He maintains such things as this:

That if a man's old hat will wear for 2 months longer he should not buy a new hat until the old hat is just about on its last legs. He maintains that we should not purchase what he calls luxuries. That we should devote our money to the service of the Government, despite the fact that all the war loans put forward by the Government have gone over in grand style.

He says the Government has \$19,000,000,000 that it has not been able to spend because there have not been things to buy, and in the same breath he indicates that the Government needs more money.

He also says there must be a curtailment of industries in order that greater factory capacities may be made available, but he does not point out what these capacities would be used for. It is a matter of fact that certain capacities have been offered to the Government and the Government could not use them.

Mr. Vanderlip talks of releasing labor for war work, but he does not say what kind of labor is needed or where it is needed. As a matter of fact labor has been superfluous in some sections and the Government has not been able to use it. If there should be an unfilled need for capacity or labor and the expansion of industry could not meet it, then it would be time to talk of curtailment, but these policies of curtailment at this particular time are radically wrong and are unwise from an economic standpoint.

If the time comes when we must cease all other activities and concentrate upon war work then the great war is within 6 months of its finish and we shall either win it or lose it in 6 months. If we were sure we could win it by doing nothing except manufacturing munitions for 6 months, then that might be the thing to do, but if we must fight a 5-year war we must not break down the social, civic and industrial fabric of our country. Above all we must not bring about this disorganization of industries that Mr. Vanderlip so freely mentions.

Mr. Vanderlip has many friends and well wishers in America. For years he has been regarded as one of our biggest and our best and most efficient men, and it is to be regretted that at this time he is found in a rôle that is so directly opposed to the economic welfare of the nation he is so energetically endeavoring to serve.

We Must Serve

THE war will be won by service. Those of us who cannot fight can work. And we can and must use our heads and hands as we never used them before.

Thousands of manufacturing plants are making war material, but thousands of others must serve by speeding up their output of materials designed for peace, but no less necessary for war. The motor car industry is one of the most important in the present crisis. More cars are needed, both passenger cars and trucks. New types and new methods of construction are necessitated by the unexampled condition confronting us.

If the government requires the unusual it must be forthcoming without delay; therefore the factories must be kept at the highest point of efficiency and so highly organized that no sudden call on their

resources need go unheeded or fail to find immediate response.

Our industry is turning out not luxuries *but vital necessities*, and the men engaged in it are helping to win the war first, but are in the enviable position of increasing their own businesses while so doing.

We are gradually settling down to a realization of the facts as they are, and the farseeing leaders are encouraging the others to serve their country and themselves by keeping the wheels turning.

Putting fear and excessive caution aside, it is the duty and privilege of every manufacturer, every executive and every workman to serve with all his intelligence, all his courage and all his strength and skill until the world is again fit to live in, and lasting peace and the rewards of peace are restored.

Service will win the war.

N. A. D. A. Plans to Form War Committee

Directors Meet During New York Show and Begin Work of Co-operation with the Government

NEW YORK, Jan. 7.—The board of directors of the National Automobile Dealers' Association met at the Biltmore today and began plans for the entry of the organization into co-operation with the Government.

The first step will be the naming of a War Service Committee to assist in the elimination of waste and inefficiency in business, as a measure of co-operation with the Chamber of Commerce of the United States and the Commercial Economy Board of the Council of National Defense.

The committee will consist of ten members, six of whom are already selected. They are: F. W. A. Vesper, St. Louis; George W. Browne, Milwaukee; John A. MacAlman, Boston; George D. McCutcheon, Atlanta, and Harry E. Pence, Minneapolis. This committee will organize in about two weeks and begin the formulation of suggestions for improving business along the new lines.

"One of the big ideas we have in mind," said Vesper, "is that there must be no thought of pessimism or backwardness. It is all right to use the term economy if it is correctly used, but when economy is considered as a stoppage of business without reason it is a wrong idea. Our purpose in this committee is to eliminate waste, which is good business at any time and is especially good at this time. Dealers must be better business men, not poorer business men."

Abbott in Bankruptcy

CLEVELAND, O., Jan. 4.—An involuntary petition in bankruptcy was filed in the Federal Court Friday against the Abbott Corp., manufacturers of the Abbott passenger car. It is estimated that the assets of the corporation are \$50,000 and the liabilities are about \$200,000. A. W. Gardiner, secretary of the Abbott Corp., states that the assets will reach a much higher figure. Concerning the bankruptcy proceedings, the statement of the company is that the plant has temporarily suspended operations, and that it is still believed that the contemplated merger of the Abbott Corp. and the Hal Motor Co. will still go through. It is the plan of the company, when combined, to make the Abbott and Hal passenger cars, and bring out a new motor truck. The Abbott Corp. was formerly located in Detroit, but moved into a new plant in this city about a year ago.

John S. Conwell Dies

LOS ANGELES, Jan. 4.—Nothing of a similar nature has so affected the motor car trade here as the recent death of John S. Conwell, known as the dean of automobile row. He was a member of the firm of Conwell & Hathaway, motor car dealers, and the oldest man

actively identified with the trade in the city. He was president of the City Council and a former president of the Motor Car Dealers.

For three consecutive years he had been the active manager of the local show conducted by the dealers' association, and it was due largely to overwork in connection with the recent show that the physical breakdown, which was followed by his death, was brought on.

Cassidy Branches Out

NEW YORK, Jan. 7.—The Edward A. Cassidy Co. has opened a western branch office at 1716 Michigan Avenue, Chicago, to bring its western trade into close contact with the company officials. R. G. Ames, division manager for Chicago and surrounding territory, will have charge.

King Prices Revised

DETROIT, Jan. 7.—The King Motor Car Co. has revised its prices as follows:

	New	Old
7-passenger touring.....	\$2150	\$1650
4-passenger foursome.....	2350	1700
Roadster	2150	1585
7-pass. convert. sedan.....	2950	2200

Wire wheels cost extra except on the foursome, which is equipped with 32 x 4½ cord tires.

Towar-Ayers Takes Denby

DETROIT, Jan. 7.—The Towar-Ayers Co. of Detroit will hereafter handle Denby trucks exclusively. The business is in charge of John B. Hance, sales manager, and Frank M. Hecox, secretary and treasurer.

Rex in Convention

NEW YORK, Jan. 7.—The Rex Ignition Mfg. Co.'s annual sales convention began this morning at Krug & Zinn's restaurant. Twenty-three division managers from the Central West, the South and the East participated. Hugo Kirschbaum, president of the company, was chairman. There is to be a three-day session, the daylight hours being devoted strictly to business and the evening hours to a social program. The Rex company will hold a similar convention in its Chicago branch office Jan. 15, at which time the branch managers from the coast and the Southwest will be the conferees.

Baker International Representative

NEW YORK, Jan. 8.—Benjamin F. Baker has been appointed wholesale representative in New York for the International Harvester Co. He will make his headquarters at the Philadelphia factory branch. Baker was formerly Brooklyn manager and efficiency expert for the Garford Motor Truck Co.

Ford Takes Part of Holley Plant.

DETROIT, Jan. 7.—The Ford Motor Co. is taking over that part of the Holley carbureter plant used in the manufacture of carbureters for the Ford Model T. At present the Holley Brothers Co. is reorganizing as the Holley Kerosene Carbureter Co., and will manufacture the new kerosene carbureter recently announced, together with its regular carbureter models.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Glenn P. Thayer, manager of the Demountable Wheel Co., has resigned to enter Government service. Walter Grobe is now manager.

Frank Eldridge, formerly manager of the Wallace C. Hood Service Bureau, is now with the King Auto Sales Co., 998 Woodward Avenue.

Earl W. McGookin, of Detroit, will represent the Tillotson carbureter in the State of Michigan and also in the city of Cleveland.

Fred M. Warner, Dixon, Ill., has taken a position as vice-president and general sales manager of the Interstate Tractor Co., Waterloo, Iowa.

M. J. Osborn, president of M. J. Osborn, Inc., St. Paul, Willys-Knight dealer, has withdrawn from the business and expects to become a banker. F. A. Brodt Service Company, F. A. Brodt, president and treasurer, a new corporation, has bought the service station, 305 West Third Street.

William A. Carroll, for several years associated with large motor manufacturing interests at Milwaukee, Wis., has become chief engineer and works manager of the Erd Motor Co., Saginaw, Wis., and also will act as director of sales and advertising.

C. J. Cunningham has been made service manager of the Detroit Weatherproof Body Co. For the past 3 years he has been working in the factory with this position in view.

George M. Ellis and W. C. Dudgeon have joined preparatory classes for the ordnance department at Ann Arbor. Both were connected with the Campbell Ewald Advertising agency. L. W. Chamberlain of the Carl M. Green Advertising agency is planning to join them.

A. N. Pearson has been made district representative in the New England states for the Denby Motor Truck Co., and will have his headquarters in Boston.

Charles E. Pagett, St. Louis, salesmanager for the Federal Motor Truck Co., that city, has been appointed manager of the truck department of the Packard-Missouri Motor Co., for which he formerly worked.

G. G. Giese, St. Louis, secretary and manager of the Panama Rubber & Equipment Co., has joined the United States Army Quartermaster's Department.

Donald F. Whitaker, sales and advertising manager of the Detroit Truck Co., has resigned.

Ivan R. Gates, who has promoted several salon and truck shows in San Francisco and Oakland in the past three years, has enlisted in the army and will be attached to the aviation corps. Gates was formerly a prominent racing driver.

C. J. Welch, a pioneer in the automobile business since the days of one cylinder Wintons, and a former team mate of Herb Lytle, Pope Toledo and Apperson, speed demons, has become manager for the King Auto Sales Co., Detroit, distributor for the King 8 and the Elcar. F. H. Grossbeck, former manager, enters the government service.

James H. Foster has been made service manager and superintendent of the King Auto Sales Co. He was formerly chief inspector at the Chalmers Motor Co. and at the Lozier Motor Co.

Roy Coffeen has been made branch manager of the Willys-Overland, Inc., succeeding M. O. Bridgman, who has been branch manager for the past 5 years.

Big Show Planned for Oklahoma City

To Feature Cars, Trucks and All
Sorts of Transportation Vehicles
for the Great Farm Country

OKLAHOMA CITY, Jan. 5 — The Oklahoma City Motor Car Dealers' Association will hold its second annual automobile show Jan. 22 to 25. These are approximately the same dates as last year.

A number of sites were considered, but the committee was unable to obtain any of them, and the show had almost been given up when "Dick" Carhart, of the Carhart Motor Co., offered his new Overland building. This building has been occupied about three months, is 73 x 150 ft., has four floors and offers sufficient space to accommodate about 100 cars and trucks.

Carhart is moving out his service station as well as the cars that he had in storage, and will use only his offices during show week. He is also buying his space in the show the same as any other exhibitor.

The Farm Power Equipment Show, which will take in tractors, tractor plows, gasoline engines, electric lighting plants, milking machines, power washers, small threshers, etc., will be here the same week, under a large tent, 90 x 290 ft.

A large advertising campaign is being put on for both shows, and the attendance at the automobile show is expected to be more than three times that of last year. Almost the entire exhibit space offered was taken by members of the Oklahoma City Association.

Both shows are being managed by Ray H. Haun, who is in charge of the service department of the Oklahoma Farmer-Stockman.

Kalamazoo Show Feb. 5 to 9

KALAMAZOO, MICH., Jan. 3—The annual automobile show of the dealers' association will be held in the Armory Feb. 5 to 9, inclusive. To date 22 exhibitors have engaged space for cars and accessories, and in addition there will be several truck exhibits. H. J. Cooper, W. O. Harlow and R. E. Fair are in charge.

Hartford Sells All Space

HARTFORD, CONN., Jan. 5—Practically all space for the annual Hartford automobile show was allotted at a meeting of the Hartford Automobile Dealers' Association, Inc. This year the show will be held the week of February 16 to 23. The main floor will be devoted to cars and accessories and the basement to trucks. In fact the truck section this year will be nearly as large as the passenger car section, 25 spaces having been set aside for the purpose. The same show committee as last year will be in charge.

Present indications point to a much bigger and better attraction than ever be-

fore. Fifty per cent of the proceeds is to go to the Connecticut Home Guard, which is now stationed in the Broad Street Armory, the First Regiment having been sworn into the regular armed forces some time ago. The show committee announces that good progress has been made to date.

Grand Forks Show Feb. 19-22

GRAND FORKS, N. D., Jan. 5—The annual automobile show by the dealers here will be Feb. 19-22. After a conference it was found advisable, according to J. W. Lyons, in charge of publicity, to hold the show as usual.

Calumet Show in April

CALUMET, MICH., Jan. 5—The Copper County Automobile Dealers' and Garage Owners' Association will hold its annual Upper Peninsula automobile show in the Coliseum from April 17 to 20.

Essay Contest to Stimulate Car Show

MILWAUKEE, WIS., Jan. 3—The Milwaukee Automobile Dealers, Inc., has arranged two essay contests. Two \$50 Liberty Bonds will be awarded to stimulate interest in the first annual Milwaukee commercial car show, which will follow immediately upon the tenth annual passenger car and accessory show in the Auditorium, Jan. 18 to 24, and last three days, or until Jan. 27. One contest is limited to motor truck drivers, who will write essays on the topic, "The Best Method of Caring for a Motor Truck." High-school students will write on "The Value of Motor Truck Transportation." Each set of essays will be judged by a jury of three experts.

Whiting Gets International.

NEW YORK, Jan. 8—The International Harvester Co. hereafter is to be represented in New York. The Whiting Motor Co., which for the past nine years has handled Mercer passenger cars, has been appointed International distributor for New York and Newark, N. J., territory. Whiting will continue to handle the Mercer. There will be a new 2-ton International truck brought out this month.

Wilmington Show Looks Good

WILMINGTON, DEL., Jan. 3—The management of the coming Wilmington Automobile Show, which will be held at the Hotel du Pont the week of Jan. 21, feels quite optimistic, and no effort will be spared to give the show a strong public appeal. An addition to the hotel is being built, and would probably have been completed had it not been for interference by the war, and if it had been completed the show could have profited accordingly. However, it is believed there will be an opportunity to show at least one of every make of car handled here and all of the latest accessories.

According to the management a special appeal is to be made this year to the prospective rural buyer, and an effort will be made to secure as large a country attendance as is possible.

Vanderlip Says We Should "Economize"

Before Rubber Association Suggests
the "Curtaiment" Policy That
Now Finds Small Favor

NEW YORK, Jan. 7—Frank A. Vanderlip of the National City Bank, and who is now operating for the Government in connection with the war thrift loan, addressed the Rubber Association of America to-night at the Waldorf-Astoria and reiterated those policies which have caused comment for several weeks.

Mr. Vanderlip maintained that the individual in our nation should be more economical and that he should not spend so much money. He maintained that if we are to win the war we must cease to buy many of the things we have purchased in other years; that we must cease to buy what he terms luxuries; and he is credited with having indicated earlier in the day that the motor car was a non-essential. The car, by the way, has long since ceased to be classed by our Government as a non-essential.

Mr. Vanderlip talked of the need for greater factory capacity, but he did not point out any particular use that would be made of factory capacities if all the factories in America offered themselves to the Government to-morrow. He talked of the need for releasing labor for Government work, but he did not point out where men are needed, what they are needed for or anything of that kind.

Make the Old Hat Do

He is also credited with having stated in St. Louis that if a man's old hat will last several months longer he should not buy a new hat until that time has passed.

"Some people fear that we may disorganize business," he said. "The tragedy of it is going to be that we are not going to disorganize certain kinds of business enough. In the period of such tremendous prosperity, in a time when the wage fund is so great, when the profits of agriculture are so tremendous, it is going to be impossible to take this lesson of economy with 100 per cent efficiency to 100,000,000 people. What I fear is that we shall have the greatest business in luxuries we have ever known, that people will unconsciously exercise their command over labor, over material, over shop room and transportation and will interfere with outfitting this army."

He said the Government had appropriated \$19,000,000,000 for the purchase of raw materials and had been unable to spend this money because there were not enough things produced to spend it for. He did not agree with the policy that we must expand our industries to effect greater production, but indicated that we must cease some of our production in order to make room for war work, which is contrary to the idea of the expansion of industry that is now recognized by most of our readers as the only sound course to follow.

New Membership Plan by Ohio Association

Organization To Ask for 20% of Pledges of \$15,000 Made at Re- cent Columbus Reorganization

COLUMBUS, OHIO, Jan. 4—The board of directors of the Ohio Automobile Trades Assn. has laid out a membership campaign and is about to issue a call for 20 per cent of the pledge of \$15,000 made by tradesmen throughout the State for promoting organization work. The plan includes speakers, newspaper publicity and mail propaganda. A chairman is to be appointed in each county, and it is proposed to hold a meeting in Columbus Feb. 6, at which it is expected there will be a large attendance. This is the first meeting of the Ohio board of directors since the recent convention in Columbus.

Larrabee Offers New 5-Ton Truck

BINGHAMTON, N. Y., Jan. 6—A new 5-ton model Larrabee, known as model T, has been put on the market by the Larrabee-Deyo Motor Truck Co., Inc. The largest model made by this company heretofore was a 3½-ton truck. At the annual meeting of the company held Dec. 31 all the officers were re-elected. R. H. Deyo, the vice-president and general manager, reported an increase in business of 210 per cent.

New Prices for Dort

NEW YORK, Jan. 5—New prices for the Dort were made public to-day. The five-passenger touring car and the roadster which were \$725 are now \$865. In the four-season line, the sedan, which was \$1,095, has been made \$1,265; the sedanet, a convertible type, has been raised from \$845 to \$1,000. A new coupe model not heretofore manufactured has been brought out at \$1,265.

\$3,000,000 War Order

LANSING, MICH., Jan. 4—The Prudden Wheel Co. and the Auto Wheel Co. have received a Government contract calling for \$3,000,000 worth of escort wheels. These contracts must be completed by Dec. 31, 1918, and are proportional to the representative productive capacities of the two concerns. It is estimated that the Auto Wheel Co. will require 800 additional employees to complete the work in that time. Other big orders calling for the same type of wheel have been placed with the Kelsey Wheel Co. of Detroit and the Hayes Wheel Co. of Jackson.

War Work for Stearns

CLEVELAND, Jan. 5—The F. B. Stearns Co. has received a contract involving several millions of dollars to manufacture airplane engines for the British Government. It is a sub-contract of the Rolls-Royce Co., Ltd., and all but a few minor parts will be manufactured

by the Stearns company. This, of course, necessitates several additions to the Stearns factories. Land west of the factory is under control and doubtless this will be used. Car manufacture will be continued.

Has Contract for 500 Class B Trucks

INDIANAPOLIS, IND., Jan. 3—The Service Motor Truck Co. of Wabash, Ind., has signed a contract to build 500 Class B heavy duty motor trucks for the United States Government. The company expects to start work on the order early this month and plans to complete 100 trucks each month until the order is filled.

Ford Output Normal

DETROIT, Jan. 5—All rumors to the contrary, the production of the Ford Motor Co. still continues above normal. During the months of September, October and November a total of 234,774 cars have been manufactured, or an average monthly production of 78,258 cars. This has been done coincident with the manufacture of Government material, and unless subsequent Government orders materially decrease the production, the company will reach its schedule for the year totalling 900,000 cars.

\$50,000,000 for Air Bases

WASHINGTON, D. C., Jan. 4—The expenditure of \$50,000,000 for construction of aeronautic bases in this country was proposed yesterday by Secretary of War Baker in a report to Congress. The secretary's report intimated that further information on this subject would be disclosed in closed hearings of the committees. The location of the new bases was not mentioned and the secretary disposed of the \$50,000,000 as follows:

Twenty-four million dollars for 16 aeronautic stations in the United States; \$3,500,000 for 20 balloon stations in the United States; \$4,420,000 for aviation bases in Hawaii; \$5,420,000 for aviation bases in Panama; \$12,000,000 for equipment of the various bases.

Canada Sees Trouble Ahead

MONTREAL, Jan. 5—It having been reported throughout the trade in Canada that the Government proposes to restrict the importation of gasoline and motor cars, the automobile dealers are planning to lay facts before the Government to prove that such action would be harmful to the Dominion. The Montreal Automobile Trade Association through its manager, T. B. Kirby, is gathering information, and it is probable that a meeting of the trade will be held at an early date.

Disbrow with Moore

MINNEAPOLIS, Jan. 7—Louis Disbrow, famous automobile racer and engine designer, has joined the Moore Motor Vehicle Co. in the capacity of chief engineer. After attending the New York and Chicago shows he will assume full charge of the engineering department of the Danville factory.

Flint Isn't at All Worried About War

Bank Clearings, Due to Car Production, Are Big, and 1918 Looks Like Prosperous Year

FLINT, MICH., Jan. 4—That the past year has been one of prosperity has been indicated by a marked increase in bank clearings, as shown in a final yearly report. Clearings for the year just past amount to \$86,256,684. This is practically three times what they were in 1914 at the beginning of the war. Much of this prosperity can be directly traced back to manufacturers of cars and parts.

The largest of these is the Buick Motor Co., which is at present engaged on substantial war orders for Liberty engines and munitions. During the past year this company has completed a large office building at a cost of \$500,000. The biggest problem was the freight car situation, and this is being relieved by drive-aways.

The Champion Ignition Co. has increased its production from 35,000 to 50,000 A. C. spark plugs a day, and plans to increase this to 80,000 plugs a day in the coming year. This will necessitate an increase in floor space and equipment and in the number of workmen employed.

The Chevrolet Motor Co. reports a large volume of business in the past year with its peak production in October. Indications are that this peak will again be approached during the months of February, March and April.

The Dort Motor Car Co. with its Canadian associate increased its production about 100 per cent in the past year. In 1916 8000 cars were produced, and it is expected that both plants will manufacture about 20,000 cars in 1918. The other automotive concerns, the Marvel Carbureter Co., the W. F. Stewart Co., body manufacturers, and the Flint Varnish & Color Works, all report marked increases in the volume of business. The latter company states that the increase in the past year has been about 40 per cent and the nearly 500,000 cars have received their finishing coats from this plant.

Can Work for Enemies

WASHINGTON, D. C., Jan. 4—The War Trade Board has announced that manufacturers who have made contracts with enemy aliens in neutral or allied foreign countries can fulfill these contracts if breach of them would violate the laws of the country in which they have been made. This applies only to contracts already made and in force, and all such contracts which are fulfilled must be reported to the board within 30 days.

Troy Gets War Order

TROY, OHIO, Jan. 5—The Troy Wagon Works Co. has received a Government order calling for 100 2 to 5-ton Troy trailers of special design for the Signal Corps.

Words of Optimism

This Is the Idea

Editor Motor World: As far as our Show is concerned we hear absolutely no objections. On the other hand, there seems to be just as great interest in the show as ever before.

The Muehlebach Hotel manager informed me a day or two ago that he had received by far more reservations for the Motor Show time than he did last year up to this date.

Personally, I think the non-essential and the essential things are being overdone by a lot of people who think they are going to save the country by *loud shouting*.

My idea is that if this war is going to be won, it is going to be won with dollars, and if it is going to be won with dollars, dollars must be made during the war.

That means that the lines of production which are making dollars must continue to make them and I *get tired of hearing talk of "cutting this out and cutting that out."*

I will be glad to keep you advised on the situation here, but all lines of business are standing up remarkably well and are improving over the conditions of three months ago.—E. E. Peake, Secretary-Treasurer, Kansas City Motor Car Dealers Association.

Cassidy Sees 1918 Prosperity

"The majority of the jobbers with whom our men come in contact did big business during October, November and December, 1917," said Edward A. Cassidy, president of an accessory distributing company of New York that bears his name. "In some cases the increase was more than 100 per cent as against the same months in 1916. The causes, in my mind, have been various.

"There's been the settling down to normal, a reaction from war fears; there has been the readjustment of financial affairs following the proof of the nation's stability by over-subscription of Liberty loans. Government control of railroads, followed by the President's statement of the nation's policy in regard to the roads and the safeguarding of the interests of security holders, has increased confidence in great measure—a confidence already perceptible at this show.

"For ourselves, we can say that November and December orders on the lines we sell showed a great increase, indicating that increased jobbers' business was directly reflected by increased orders to manufacturers.

"While no one has shown sales records that forecast a period of business inflation, practically every manufacturer with whom we have discussed conditions has expressed himself as very sure of a big year in 1918. One manufacturer of a staple commodity did more business

in December than in any other month of his history.

"Personally, we are never inclined to be either optimistic or pessimistic; we believe in facing facts and working with our eyes wide open to the meaning of conditions. Considering the facts in our industry, in the affairs of the nation and in the money market, we confidently look forward to a year's business far greater than that of 1917."

Benford Sees Big Business

December was the biggest month in the history of the Benford Mfg. Co. of Mt. Vernon, N. Y., according to Sales Manager David Levin. Instead of any decrease following the beginning of the war the business increased steadily since August, and December is 20 per cent greater than August. Levin is looking forward to the biggest year the company ever had. He states that with the need for more equipment because of the operation of the more than 4,000,000 cars in America business in his particular line must of necessity be exceedingly good.

Reo Shipping 150 Cars Daily

LANSING, MICH., Jan. 3—The daily shipments of the Reo Motor Car Co. average from 125 to 150 cars, and many of these are being driven overland by the dealers themselves. Some of these cars are being taken by the dealers and stored at points near this city in the hope that the freight-car situation will ease up slightly and permit them to be shipped to their ultimate destination. Whenever possible, however, drive-aways will be made.

The Reo Motor Car Co. is tooling up preparatory to the manufacture of tractors for the United States Government. It is stated that this work will not materially reduce the production of the Reo company, as it works in nicely with the equipment and labor at hand. Hence the Reo dealers throughout the country will suffer no particular hardship. There are at present about 3500 cars on hand ready for transportation if the equipment were available, and officers of the company state that government control of the railroads will doubtless better the freight car situation.

Minnesota Crop Doubled in 1917

MINNEAPOLIS, Jan. 3—Minnesota crops for 1917 were double those of 1916, as reported by the Minnesota field agent at Fergus Falls. Combined value of all crops was \$447,498,000, as compared with \$211,898,000 in 1916. On every crop on Dec. 1 the price was higher than in 1916, except potatoes. The latter crop figured at 91 cents, as compared with \$1.30 Dec. 1, 1916.

Combined winter and spring wheat for 1917 measured up at 57,965,000

bushels valued at \$117,089,600 on the farm, as compared with 26,410,000 bushels with farm value of \$42,784,000 in 1916. Corn's total value, at \$33 per acre, was \$99,000,000. Onions showed the largest returns per acre, or \$504.60, totaling \$732,000.

This gives an idea of the purchasing power of the farmer in the Northwest for the 1918 automobiles. With something like 80 per cent owned already by farmers the possibilities of a continuing business by automobile dealers with this class seem to be doubled for 1917-1918 as compared with the previous year.

Big Car Registration in Ohio

COLUMBUS, OHIO, Jan. 7—Demand for 1918 tags in Ohio is greater than ever before for this early in the year. Applications are almost overwhelming the office force, and up to Jan. 3 the department had issued approximately 100,000 sets of tags.

Ford Company Increasing Working Force

DEARBORN, MICH., Jan. 5—Henry Ford & Son, Inc., is taking on a large number of additional help, and those needed are tool makers, die makers and metal and wood pattern makers. It is these men that are required to equip the factory and increase production of the Ford tractor. At present about 1400 men are employed.

Northway Company to Make Cars

BOSTON, MASS., Jan. 4—The Northway Motors Corporation has been formed at Boston, Mass., and has secured a charter to manufacture cars and trucks. R. E. Northway, formerly head of the Northway Co. of Detroit, that made motors, transmissions, rear axles, etc., and was taken over by General Motors in 1909, has come East to be chief engineer. Senator James E. Cavanagh is president. James E. Finneran, head of a big drug company, is treasurer, and some men prominent in other lines comprise the board of directors. The company has been incorporated for \$5,000,000. The plant will be located in Boston.

Savannah Dealers Hope for Better Railroad Transportation Service

SAVANNAH, GA., Jan. 3—Automobile dealers are facing the new year with a new aspect of the railroad transportation problem staring them in the face. Having been for some months at the mercy of the individual railroad systems for deliveries and getting more or less sorry results they are now wondering what provisions will be made for the shipment of passenger cars and trucks by the Government since it now has charge of the railroads.

The optimists among the dealers, however, are looking forward to better deliveries because, they figure, now that the railroads are under one governing body higher efficiency will be the result and shipments and deliveries will be more prompt.

The Washington Situation

WASHINGTON, D. C., Jan. 5—Congressional investigation of the Council of National Defense, new bills for revising the Council, suggestions for a Secretary of Munitions and optimistic reports from the aircraft board marked the most important events of the week.

The Congressional investigation pursued mainly by Congressmen McKellar, Chamberlain and Weeks, though not conclusive in its findings has resulted in a bill by Congressman McKellar demanding that officials of the Council be men not in any way affiliated with companies engaged in or seeking war work. It is a bill that carries many possible dangers with it. It plans to pay large salaries in place of the present \$1 per year. It plans to place men in charge of departments of purchasing power whose main qualification is that they are not connected with the industry with which they must be familiar enough to place orders running into millions of dollars.

Suggest Large Salaries

One plan suggested is that the large salaries that may be paid will secure experts in each line willing to give up their present positions. This sounds reasonable, yet several obstacles to efficiency stand in the way. First, it is likely that a man giving up a position to join the Government forces may be unable to withstand his friends in the industry. Second, the men to be secured as experts will be appointed by the Director of the Council and such a plan will allow for political pressure, for partisanship, for petty politics, and for the installation of politicians in place of experts as the buyers for the Government and its Allies, regardless of whom the Director might favor, as past experience has shown appointive positions plus large salaries always mean politics.

If Senator McKellar's bill is passed it would mean the discharge of H. L. Horning, now in charge of the automotive section. It would not take away men like Julius Rosenwald, whose companies are not engaged in war work, but it would remove every expert in any line who has affiliations with his industry.

The bill by Senator Chamberlain calls for an addition to the President's cabinet of a Secretary of Munitions, similar to the Minister of Munitions of England. This plan is expected to remove present purchasing difficulties and to co-ordinate all buying. It will not, however, have such a result. Under the system by which it is designed, it is likely that such a Secretary of Munitions would have only direct supervision of the Ordnance purchases, and that we would find, as England found several weeks ago, after four years of war, that its purchasing powers are not even now co-ordinated and actually reside at present in the hands of the Air Board, the Ministry of Munitions and the Admiralty of War Office.

To have a really efficient purchasing plan in this country we should have some individual or body of men in whose hands power for making all purchases for all war and navy supplies for the United States and all the Allies would reside.

Judge Lovett, whose priority orders were suspended this past week, requests that statement of facts be made to show that reports testifying that his priority orders caused congestion of freight are untrue. Judge Lovett states that the congestion was actually caused by an old "hold over" tag system designed in the Mexican war and used until recently by the War Department.

During the Mexican trouble railroads issued blue tags to the War Department to be placed on all war shipments in order to secure preference for them in transportation. Every clerk was given hundreds of these tags. When the world war developed these tags were in the hands of clerks who have used them until recently upon every package or freight car that was in any way connected with war work. This, according to Judge Lovett, has been the real cause of a considerable part of the freight congestion.

The Council of National Defense through its committees is attempting to find a solution to present and future war problems. In an interview this week Director Gifford of the Council stated that he believed the labor problems of the war were not connected with the usual routine of the Department of Labor and that the Council committees are working independently of the Department.

Looking After Labor

At the Department of Labor this last week it was stated that the Department knows fully the existing and coming labor problems and is prepared to care for them efficiently. Again, an example of different Government divisions working separately on the same problems.

Interesting in view of the above comes the report from the Shipping Board that it plans to send speakers about the country to secure workers for the ship yards by an appeal to the patriotism of the workers. With three agencies working on the same problems we should see either speedy gathering of more than enough workers, or a confusion arising that will bring more delay.

The Aircraft Board, according to Howard E. Coffin, is making all the progress that can be expected, and is up to its schedule in every instance. Coffin is very optimistic as to the great part our country will play in the war with its huge fleets of airplanes. In an interview this week he stated that most of the contracts for aircraft work are now being placed in the Middle West to avoid the freight congestion that accrues when too many orders are placed in the East. He told that 10 training planes are being produced daily in this country now and

that thousands of the highest class of men are being given flying instructions on American fields.

At first we sent many of our potential flyers to France, but recent advices from that country were to the effect that they had as many men as could be properly cared for and as a result the numbers training in this country are now increasing rapidly. Training machines have been shipped abroad and to other countries for some time, but these too are now being used at home since the foreign countries advised that they have received a sufficient number for the time being.

All eyes are turned toward the new railroad dictator and many are wondering what the result of his activities will be. They seem entirely constructive. Plans are being made for building up the roads, the freight cars, the locomotives and the various warehouses and docks and terminals.

Prospective Priorities

It is most certain that at times and possibly often war work will have to have the right of way and we may see priority orders issued again in the future allowing fuel, munitions or food priority over other materials or articles, but such methods are to be expected at least so long as our roads are in their present shape and we should take them patiently hoping that the new building up measures will soon result in adequate freight transportation for all materials and merchandise of the nation.

Schaniel to Handle Merchant's Tightener

SYRACUSE, Jan. 7—J. H. Schaniel has taken over the exclusive selling agency for Merchants' anti-skid chain tightener. The device is made by M. H. Merchant, Syracuse.

More Gas Than Ever, Says Bedford.

WASHINGTON, Jan. 7—There is no shortage of gasoline, according to a statement by Chairman A. C. Bedford of the Petroleum War Service Committee. "As a matter of fact," he said, "as a result of the light domestic demand incident to the winter weather, the stocks of gasoline are increasing and will further increase before the heavy summer demand is encountered."

Mercury Cars Coming from Long Island

NEW YORK, Jan. 7—Mercury Cars, Inc., which was recently formed in New York, is preparing to place on the market a four-cylinder car powered with a Weidely 3½ x 5½ engine and to sell for \$2,750 to \$2,950 in open models and \$3,600 to \$3,900 in closed models. The company has established a factory of limited size at Hollis, L. I., and plans to enlarge this considerably prior to the time active production of cars is commenced, which probably will be mid-summer of this year. The car, the first of which is on view at the Astor salon, is very simple in construction and has been designed to require the minimum of care. It will have a wheelbase of 114 in.

Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starting	Clutch	Gearset	Wheelbase	Tires	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT 6-40	6-31x4 25.3 Remy		Stumg	Stumg	Remy	DP	3 122 32x4 SS				1295	1295	1295	1295	1920		
ALLEN 6-40	6-31x4 25.4 Remy		Stumg	Stumg	Remy	DD	3 122 34x4 SS				1505	1505	1505	1505	2150		
AMERICAN 6-40	6-31x5 22.5 Conn		Stumg	Stumg	A-Lite	D	3 112 32x4 SS				11005	1065			1395		
ANDERSON 6-40	6-31x5 21.6 G & D		Zenith	Zenith	G & D	D	3 122 32x4 SS				1375						
ANDERSON 6-40	6-31x4 25.4 Conn		Zenith	Zenith	Weths	DP	3 120 33x4 SS				1435				2165		
APPERTON 6-40	6-31x5 29.4 Remy		Radd	Radd	Bijur	DP	3 130 34x4 SS				2200						
AUBURN 6-40	6-31x5 33.8 Remy		Johnson	Johnson	Bijur	DP	3 130 34x4 SS				2550						
AUBURN 6-40	6-31x4 22.4 Remy		Radd	Radd	Remy	DP	3 120 34x4 SS				1345	1345			2450		1505
AUSTIN 6-40	6-31x5 29.4 Delco		Radd	Radd	Delco	DP	3 131 35x4 SS				1665	1665			4850		1505
BELL 6-40	Hy-King 12-21x5 30.6 Delco		Stumg	Stumg	Delco	D	6 142 34x4 QD				3750	3750	4000	4550			
BIDDLE 17	4-31x5 19.6 A.Kent		Zenith	Zenith	Dyneto	D	3 112 31x4				895						
BOUR-DAVIS 17	4-31x5 22.5 E'mann		Zenith	Zenith	G & D	DP	4 121 32x4 QD				2600		2650		4100	4000	
BREWSTER 17	6-31x4 25.3 Remy		Stumg	Stumg	G & D	DP	3 118 32x4 QD				1385						
BRISCOE 17	4-4 25 25.6 Boech		Zenith	Zenith	U.S.L.	C	3 125 34x4 SS				7200				8400	8540	
BUICK 17	4-31x5 16.3 Conn		Buick	Buick	A-Lite	C	3 104 30x4 C				725	725				850	
BUICK 17	4-31x4 18.2 Delco		Marvel	Marvel	Delco	C	3 106 31x4 C				785	785					
BUICK 17	4-31x4 18.2 Delco		Marvel	Marvel	Delco	DP	3 118 34x4 SS				1265	1265		11695		1465	
BUICK 17	4-31x4 27.3 Delco		Marvel	Marvel	Delco	DP	3 124 34x4 SS				1495				2175		
CADILLAC 57	8-31x5 31.2 Delco		Own	Own	Delco	D	3 132 35x5 SS				2805		2805		3650	4145	
CASE 57	6-31x5 29.4 Weths		Radd	Radd	Weths	D	3 125 35x4 SS				11875		1875		2375		
CHALMERS 6-30	6-31x4 25.3 Remy		Stumg	Stumg	Weths	DP	3 117 32x4 SS				1365	1365	1450		1850	2925	
CHANDLER 6-40	6-31x5 29.4 Boech		Radd	Radd	Weths	DP	3 123 34x4 SS				11595		1515	2165	2295	2895	
CHEVROLET 490	4-31x4 21.7 Remy		Zenith	Zenith	A-Lite	C	3 102 30x4 C				620	620			1060		
FA-5 490	4-31x4 21.7 Remy		Zenith	Zenith	A-Lite	C	3 108 33x4 SS				935	935			1475		
FA-2 490	4-31x4 36.45 Remy		Zenith	Zenith	A-Lite	C	3 120 34x4 SS				1365	1365					
COLE 860	8-31x4 39.2 Delco		Stumg	Stumg	Delco	C	3 127 35x4 SS				2195		2195	2695	2995		
COLUMBIA 6-40	6-31x4 25.3 A.Kent		Stumg	Stumg	W.Land	DP	3 115 32x4				11495	1350			1995		
COMET 6-40	6-31x5 29.4 Delco		Miller	Miller	Dyneto	DD	3 125 33x4						1285				
COMMONWEALTH 490	4-31x5 19.6 A.Kent		Carter	Carter	Dyneto	DD	3 112 32x3 SS				995	995					
CROW-FLIGHT 490	4-31x5 19.6 Conn		Zenith	Zenith	Dyneto	D	3 115 32x3 SS				935		1195	1395			
DANIELS 6-40	8-31x5 33.8 Weths		Zenith	Zenith	Weths	D	3 127 34x4 QDR										
DAVIS 6-40	6-31x4 25.3 Delco		Stumg	Stumg	Delco	C	3 119 34x4				1485	1485			1850		
H & I 6-40	6-31x5 25.4 Delco		Stumg	Stumg	Delco	C	3 124 34x4				1785	1785					
DETROITER 6-40	6-31x4 25.3 Conn		Ball	Ball	A-Lite	D	3 119 32x4 SS				1395	1395	1425		1875		
DEFAUCH 6-40	4-31x5 22.5 Boech		Radd	Radd	U.S.L.	CU	4 120 36x3 QD				1160		1250	1400			
DIXIE FLYER 1885	4-31x5 16.9 Conn		Carter	Carter	Dyneto	D	3 112 32x3 SS				995	995			1375		

Model	Motor	S. A. E.	Ignition	Carburetor	Starting	Clutch	Gearset	Wheelbase	Tires	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top
MADISON 4	6-31x5 23.4 Remy		Radd	Radd	Remy	DD	3 115 34x4 SS				11485	1485	1485				
MAIBOHM 4	4-31x4 15.6 A.Kent		Zenith	Zenith	Disco	DD	3 105 30x3 C				795			1095			865
MAIBOHM 4	6-31x5 23.4 A.Kent		Stumg	Stumg	Wagner	P	3 115 32x3 SS				975	975		1375			
MARION HANDLEY 6-40	6-31x5 29.4 Weths		Stumg	Stumg	Weths	DD	3 125 35x4 SS				11850		1850		2500		
MARMON 6-40	6-31x5 33.7 Boech		Stumg	Stumg	Bijur	C	3 136 32x4 QD				13550	3500	3550		4950	5250	
MAXWELL 25	4-31x4 21 A.Kent		K.D	Stumg	Stumg	C	3 109 30x3 C				1745	745		1095	1095	1095	855
MCFARLAN 6-40	6-41x5 48.6 Mag'to		Stumg	Stumg	Weths	DP	3 136 35x5 QD				3500	3500	3500		4900	4600	
MERCER 22-73	4-31x5 22.5 Boech		Zenith	Zenith	U.S.L.	DD	4 132 31x4 QD				13500	3500					
MERCER 22-73	4-31x5 22.5 Boech		Zenith	Zenith	U.S.L.	DD	4 115 32x4 QD				3100	Raceabout	3250				
METZ 25	4-31x4 24 A.Kent		A.W.T.	Weths	F	108 32x3 SS					695	695					
MITCHELL 40	6-31x5 25.4 Conn		Radd	Radd	Spitidf	C	3 120 32x4 SS				1250	1250		1850	1950		300x
C-42 40	6-31x5 29.4 Conn		Stumg	Stumg	Weths	C	3 127 34x4 SS				1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT C	4-31x5 22.5 Conn		Schebler	Schebler	A-Lite	C	3 118 34x4 SS				11650	1650		2280			
G 40	4-4 25.6 Conn		Schebler	Schebler	A-Lite	C	3 122 35x4 SS				11985		1985				
MONITOR C-R	4-31x4 22.5 Heine		Schebler	Schebler	Dyneto	D	3 110 32x3 SS				965	965					
M-O 40	6-31x4 25.4 Heine		Stumg	Stumg	Dyneto	D	3 117 33x4 SS				1195	1195					
MONROE M-3	4-3 24 14.4 Conn		Zenith	Zenith	A-Lite	DD	3 96 30x3 QD				565	1635		965			
N-6 40	4-31x4 16.9 Conn		Zenith	Zenith	A-Lite	DD	3 115 32x4 QD					965		1850			
MOON 6-36	6-21x4 19.8 Delco		Tham	Tham	Wagner	DP	3 114 32x4				1195						
6-45 6-66	6-31x4 25.3 Delco		Radd	Radd	Delco	DD	3 125 34x4 SS				11685		1685		2450		
MURRAY 1918	8-31x5 33.8 Dixie		Zenith	Zenith	Weths	DP	3 128 34x4				2800	2800	2800	3600		4000	
NASH 671	6-31x4 29.4 Delco		Radd	Radd	Bijur	DP	3 125 34x4 SS				1990	990		1150	1190		
681-684 NATIONAL	6-31x5 25.4 Delco		Marvel	Marvel	Delco	P	3 121 34x4 SS				1295	1295			1985		
Six 37	6-31x5 29.4 Dixie		Radd	Radd	Weths	C	3 128 34x4 QDR				11995	11995	1995	2615	2820		
Thur 37	12-21x4 39.7 Delco		Radd	Radd	Bijur	C	3 128 34x4 QDR				12585	12585	2585	3245	3420		
NELSON 4-31x4	15.6 Boech		Zenith	Zenith	U.S.L.	D	3 104 32x4 SS				1200	11400			1900		
OAKLAND 34-B	6-21x4 19.0 Remy		Marvel	Marvel	Remy	C	3 112 32x4 SS				1990	990		1150	1190		
OLDSMOBILE 45-A	8-21x4 26.4 Delco		B & Ball	B & Ball	Delco	C	3 120 34x4 SS				11185	1185		1595	1695		
37 6-21x4	18.9 Delco		Johnson	Johnson	Remy	C	3 112 32x4 SS				1965	965		1340	1565		
OLYMPIAN 4-31x4	37 Conn		Carter	Carter	A-Lite	D	3 114 32x3				1915	980		1285	1485		
OVERLAND 85B4	4-41x4 27.2 Conn		Tham	Tham	A-Lite	C	3 112 32x4 SS				780	780	1840		1240		
90 4-31x5	18.2 Conn		Tham	Tham	A-Lite	C	3 104 31x4 C										
OWEN-MAGNETIC M-25	6-31x5 29.4 Boech		Zenith	Zenith	O-M	OM	6 125 34x4 SS				13800	13800	2850		3650		4350
O-36 6-31x5	33.6		Zenith	Zenith	O-M	OM	6 136 35x5 SS				13850	13850	2850		4000		
W-32 6-4 25 38.4	Boech		Zenith	Zenith	O-M	OM	6 142 35x5 SS						5300		6300		
PACKARD 3-36	12-3 25 43.2 Delco		Own	Own	Bijur	DD	3 128 35x5 QD				3700	3700	5060		5660		
3-26											4100						

Model	Body	Engine	Transmission	Drive	Wheels	Price	Notes
DOBLE	2-5 x4	Own	135 35x5			2500	
DODGE BROTHERS	4-31x41 24	Delco	3 114 32x4 SS			885 885	1350 1350
DORRIS	6-4 x5 38.4 Boech	Stumbg	Wetba D 3 132 33x5 SS				
DORT	4-31x5 16.9 Conn.	Carier	Wetba C 3 106 30x4 QD				
ELCAR	4-31x5 19.6 Delco	Dyneto DP	3 115 32x4 SS			845 845	1945
ELGIN	6-3 x41 21.6 Remy	Stumbg	Wagner DP 3 117 33x4			11005 1005	1045
EMPIRE	4-31x5 24.0 Conn	Stumbg	A-Lite DP 3 115 33x4 SS			11165 1125	
50-51	6-31x41 25.4 Conn	Stumbg	A-Lite DP 3 120 34x4 SS			11345 1375	1345
70-A	4-51x61 42 Boech	Zenith	Wetba D 4 140 35x5 QD				6500
FIAT	4-31x4 22.5 Own	[Holly]				345 360	560 805
FORD	6-31x4 25.3 A.Kent	Dyneto D	3 115 32x4 SS			2050 2050	2850 2950 3200
FRANKLIN	6-31x5 23.4 Wetba	Raddd	Wetba D 3 119 34x4 SS			11495 1495	
GLIDE	6-31x5 21.6 Remy	Stumbg	Wagner C 3 114 32x4			11055 1055	
GRANT	12-21x5 39.6	Stumbg	DP 3 135 34x4 SS			3000 3750	3600 4500 5000
HALLADAY	6-3 x5 21.6 A-Lite	Stumbg	Wetba D 3 118 33x4 SS			11185 1150	
R	6-31x5 23.4 Wetba	Stumbg	Wetba D 3 122 34x4 SS			1385 1385	
HARROUN	4-31x5 16.9 A.Kent	Stumbg	Remy C 3 106 30x4			785	
HARVARD	4-3x41 14.4 A.Kent	Zenith	Wagner			750 1885	
HOWARD	4-3 x41 14.4 A.Kent	Zenith	Wagner			750	
HAYNES	6-31x5 29.4 Remy	Raddd	L-N DP 3 121 34x4 SS			1595	2500
36	6-31x5 29.4 Remy	Raddd	L-N DP 3 127 35x4 SS			11725	2300
37	12-21x5 36.3 Delco	Raddd	L-N DP 3 121 34x4 SS			2095	2760
40	12-21x5 36.3 Delco	Raddd	L-N DP 3 121 34x4 SS			2225	2890
41	6-31x41 25.4 Remy	Stumbg	Splitdd C 3 116 32x4 SS			1285	
HOLLIER	8-3x41 28.8 A.Kent	Stewart	Splitdd C 3 116 34x4 SS			11285 1285	
206	6-31x5 29.4 Delco	Own	Delco D 3 125 35x4 SS			1650 11750	1650 1950 2175 2925
HUDSON	4-31x5 16.9 A.Kent	Stumbg	Bijur DD 3 112 32x4			1250 1250	
Super-6	4-31x5 22.5 A.Kent	Zenith	Wetba D 3 119 34x4 SS			1385 1385	1540
HUPMOBILE	4-31x5 22.5 A.Kent	Zenith	Wetba D 3 134 35x4 SS				
R	4-31x5 19.6 Remy	Schebler	Remy C 3 110 33x4 SS			950 1000	1025
INTER-STATE	8-3 x41 28.8 A.Kent	Stewart	Splitdd C 3 116 34x4 SS			11285 1285	
T	8-31x5 29.4 Delco	Own	Delco D 3 125 35x4 SS			1650 11750	1650 1950 2175 2925
JACKSON	8-3 x41 28.8 A-Lite	Zenith	A-Lite DP 3 118 34x4 SS			11495 1495	1570 2105
JONES	6-31x5 29.4 Remy	Stumbg	Remy DP 3 125 34x4			1675 1675	2550
JORDAN	6-31x5 29.4 Delco	Stumbg	Bijur DD 3 127 35x4 SS			1985 11985	1985 2750 2800*
KING	8-3 x5 28.8 A.Kent	B & Ball	Bijur DP 3 120 34x4 SS				
KISSEL	6-31x5 25.3 Remy	Stumbg	Own C 3 117 34x4 SS			11285 1285	1735 1735
100-14	Double-6 12-21x5 39.7 Delco	Stumbg	Own DD 3 121 34x4			1385 1385	2550 2650
KLINE	6-31x41 25.3 Wetba	Raddd	Wetba DP 3 120 34x4 SS			1495 1495	11495 2200
6-38-G	6-31x41 25.3 Conn	Raddd	Wetba DD 3 116 32x4 QD			1385	1545
LEXINGTON	6-31x41 25.4 Conn	Raddd	Wetba P 3 122 34x4 QD			1385 1385	1785
LIBERTY	6-31x41 25.3 Delco	Stumbg	Delco DP 3 115 32x4 SS			1350 1350	1925
LOCOMOBILE	6-41x5 43x3 Bering	Ball	Wetba DD 4 139 37x5 QD			15150 5000	5000 6200
Series II	6-41x5 48.6 Bering	Ball	Wetba DD 4 142 37x5 QD			16050 5050	5050 7200
LOZIER	4-41x61 28.9 Boech	Stewart	G & D D 4 120 36x4 SS			1685	
84	6-31x5 36.0 Eiman	Raddd	Wetba DP 3 132 35x4 SS			2775	
LUVERNE	6-31x5 33.7 Boech	Schebler	Boech DD 132 35x4 SS			1650	

ABBREVIATIONS—"A.C." Allis-Chalmers, "L.N." Leece-Neville, "Tiltson" Tiltson, "B & Ball" Ball & Ball, "Atr" Atomizer, "Reb" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE— $3\frac{1}{2} \times 5\frac{1}{2}$ means that the rear tires are $37\frac{1}{2}\%$, and the front are smaller. Detachable top, 300x, means \$300 extra.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

New York, N. Y.	Salon, Automobile Salon, Inc.	Jan. 2-9	Astor Ballroom. John R. Eustis, Mgr.
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-13	
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18	
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19	
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wanamaker's Garage.	Jan. 12-19	
Rochester, N. Y.	Tenth Annual, Exposition Park.	Jan. 14-19	C. A. Simmons, Mgr.
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Jan. 16-25	
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26	
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26	
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wignmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27	
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Stuart, Mgr.	Jan. 19-26	
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26	
Wilmington, Del.	Wilmington Automobile Show, Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26	
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26	
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26	
Oklahoma City, Ok.	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26	
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26	
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26	
Baltimore Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory.	Jan. 22-26	
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisner, Publicity Mgr.	Jan. 23-28	
York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan. 26-Feb. 3	
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2	
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson - Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2	
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory. National Automobile Chamber of Commerce.	Jan. 26-Feb. 2	
Harrisburg, Pa.	Capital City Motor Dealers' Assn., J. Clyde Myton, Mgr.	Jan. 26-Feb. 2	
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2	
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2	
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January	
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February	
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February	
Minneapolis, Minn.	Twin City Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Willmot, Mgr.	Feb. 2-9	
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger cars.	Feb. 23-Mar. 2	
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9	
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16	
Binghamton, N. Y.	Binghamton Automobile Dealers' Assn., Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9	
Lancaster, Pa.	Automobile Track Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9	
Portland, Ore.	Portland Automobile Trade Assn., Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13	
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16	
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16	
St. Louis, Mo.	St. Louis Auto Mfgs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16	
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23	
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23	
Albany, N. Y.	Albany Auto. Dealers' Assn., State Armory.	Feb. 16-23	
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24	
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24	
Waterbury, Conn.	United Shows Co.	Feb. 18-23	
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23	
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23	
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23	
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23	
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	Feb. 18-23	
Des Moines, Ia.	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vleet and Dean Schooler, Mgrs.	Feb. 18-24	
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27	
Cedar Rapids, Ia.	Commercial Vehicles, Cedar Rapids Auto. Trade Assn., Auditorium.	Feb. 2-9	
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23	
Muskegon, Mich.	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2	
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	Mar. 2-Feb. 27	
Columbus, O.	Auto Exhibitors Co. W. L. Carney, Mgr.	Feb. 27-Mar. 2	
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6	
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2	
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9	
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9	
Clinton, Ia.	Clinton Automobile Dealers' Assn., Coliseum.	Mar. 6-9	
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9	
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11	
Great Falls, Mont.	Montana Automobile Distributors' Assn.	Mar. 16-26	
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates	Mar. 19-24	
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-23	
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23	
Stockton, Cal.	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13	

Conventions

New York	Convention, National Association of Automobile Accessory Jobbers, Hotel Astor.	Jan. 11-16
	World's Salesmanship Congress.	Jan. 16-20
Montreal, Can.	Third Annual. Convention of all men interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago	Annual Convention, Garage Owners' Assn. of Ill., Green Room, Congress Hotel.	Jan. 23-31
Richmond, Va.	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	Jan. 21-26
Toledo, O.	Toledo Auto Shows Co.	Feb. 11-16
Duluth, Minn.	Duluth Automobile Trade Association. John J. Lane, Mgr.	Feb. 18-23
Great Falls, Mont.	Montana Automobile Distributors' Association, Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 3

New York, January 16, 1918

Twenty-five cents a copy
Two dollars a year



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BEARINGS
FORMERLY U.S. BALL BEARINGS

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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, January 16, 1918

No. 3

Saw Wood!



More wood-sawing and less hysteria and stopping of activity are what are needed if the country is to be helped instead of hindered

Car and Truck Drive-Aways Can Save the Country

*Are You Ready for the Time the Government May
Demand That All Vehicles Be Driven From Factories*

SUPPOSE the railroad dictator should issue orders that no motor cars or motor trucks should be shipped by railroad trains to any part of the country.

Suppose the railroad dictator went further, and ruled that in order to conserve railroad transportation the shipment of spare parts and tires from automobile factories to dealers by railroad would be prohibited.

If you were then appointed dictator of motor car and motor truck and accessories for the shipments from the factory to the distributor and the dealer, what would be your method of analyzing the situation and arranging to meet this new order of affairs?

Such a Situation May Come

You would have a herculean task on hand, but perhaps it is not beyond the realm of common sense to imagine that such a situation might confront our industry within the next 6 months. Supposing it did, we should be prepared to handle it.

The government, with the object of relieving railroad congestion, is going to drive overland from the factories to seaports all of the standardized war trucks. Two experimental truck trains have already made the trip, one from Buffalo, the other from Detroit. Both trips were made in the severest weather, but they demonstrated the practicability of the work and the value to the War Department, as well as the training the drivers received.

If it is necessary for the government to drive its trucks overland, how much more necessary will it be for the motor-car and motor-truck makers to drive overland their vehicles that are for domestic sale.

There is no greater opportunity before the motor-car industry for demonstrating the imperatively essential nature of the vehicles than that which exists at present. *It is one of the big problems ahead of the dealers and distributors.*

All Vehicles Can Be Driven Away

It is not impossible to drive away nearly all of the motor cars to all parts of the country. Driving from the Detroit zone to New York has been under way for months, and one New York distributor is now organizing to drive fifty cars a day from his factory to Buffalo, where they will be stored, and driven to New York under more favorable road conditions.

It is quite easily possible that railroad embargoes may prevent the shipment of motor cars into New England, and that all New England cars may be unloaded at Albany, or some point nearer New York, and thence driven to the dealer and the ultimate consumer.

It is a long way to drive motor cars to San Francisco,

but if a railroad shortage warranted, it might be possible to make greater use of the Mississippi and the Panama Canal. "Necessity is the mother of invention," and there is no telling what could be done, and done quickly, if it had to be done.

It is possible that in addition to driving motor cars and motor trucks overland that each car will have to carry a load in addition to the driver in charge of the vehicle. It may be necessary to carry a supply of spare tires, which should not be impossible, as the great zone of tire production is located close to the zone of motor-car production.

It is quite possible that each motor car leaving its factory might carry a quota of spare parts, thereby relieving the railroads and the express companies of this tax on their facilities.

May Modify Shipping Customs

It is highly possible that motor-truck makers will have to modify their existing customs of shipping trucks without bodies, which has been convenient while there are railroad cars for such shipment.

It is too much to expect that in these days of railroad-car shortage that motor trucks should be shipped when there is not enough shipping capacity for coal and foods. Each truck maker can build a standard platform for the truck. Where trucks are sold before leaving the factory the dimensions of the platform can be furnished through the dealer to the manufacturer.

With this done, an improvised body can be fitted and the truck leave the factory with a load of useful merchandise. The load might be spares for the dealer. It might be tires, or it might be war merchandise.

A timely suggestion has been made in Washington that motor trucks being driven from the factory to seaboard might carry supplies for shipbuilding, particularly if these ship parts are made in the zone of the Great Lakes, where many of them are certain to be manufactured. Carrying these parts would be performing one of the greatest services to the nation, because there is no greater need than that for shipping.

Trucks Might Carry Freight

It is possible that some of the trucks leaving the Detroit zone could be loaded with supplies of chemicals from the big drug companies of that area, and which are so needed by our armies abroad.

It may be argued that the New York, the Baltimore, the Boston, or the Philadelphia business men purchasing the truck would object to paying the price when his truck is being driven 700 miles before being turned over to him. He might demand a reduction in price.

Go to the Chicago Show

Should he demand such a reduction it would be possible to arrange with the government whereby it would pay for its merchandise transported, as well as the truck fuel used, so that some adjustment could be made with the purchaser. Where the dealer used the truck to bring his own spares he could naturally afford to make an adjustment equal to the economy so effected.

Would Be No Trouble with Buyers

As to the possibility of the buyer refusing to accept a motor truck which was driven overland from the factory, there is not the slightest danger on that score. He will be so seriously in need of the truck that he will be glad to get it.

There is another brighter side to this question. Driving the truck overland from the factory to seaport affords an excellent opportunity for the purchaser to get his drivers familiarized with the truck.

If he is purchasing a new machine he has the opportunity of having the driver visit the factory for a week, perhaps previous to the date of the driveaway. This prepares the driver for handling the truck. He has the best opportunity available of studying its construction.

The factory in turn has the best opportunity of judging as to the ability of the driver, and his capacity for giving the truck that service which it needs.

Trucks Would Not Be Abused

With trucks driven away, and truck trains under the supervision of a factory mechanic, there is little opportunity for the trucks being abused. The factory expert can check the lubrication every half day, or oftener. He can check ignition, adjust carburetion, and make any other necessary adjustments.

The drive-away should result in a very careful testing out of the truck, so that when it arrives at its destination it has gone through its testing trials, and is perhaps in a better condition than if left alone in the hands of a new driver for a similar period.

This may be a Utopian vision of a situation which we will have to face, but it is more preferable to look at the silver lining than at the darkest aspect of the problem.

The drive-away situation which the dealers are facing offers the greatest opportunity for co-operation and organization that could be wished for.

Dealer Organizations Could Direct Work

Take an area like New England, which is a unit of territory which is perhaps more closely unified in a business sense than any other area. It is also blessed with an exceptionally good and well co-ordinated highway system.

With such a unity why should not every motor car driven from the factory into New England be under the direction of an organization representing the New England dealers? This organization would have to establish a road organization similar to the dispatching system on a railroad.

It could not hope to bring all of the motor cars needed over one highway. They would have to be routed by different roads. It would be impossible to find garages along the roads capable of accommodating all the machines.

It might be necessary to arrange night camping grounds at suitable points and maintain commissary departments en route. It might be necessary to establish greater facilities for serving gasoline for the great numbers of cars.

Take any other unified section of the country, and there is an opportunity for the dealers to co-operate in this problem that is ahead. Think of the tens of thousands of motor cars that would have to leave the Detroit zone in the Chicago direction. It would be necessary, and it would be good business, to have several paralleling highways improved so that the great streams of traffic can be divided and the roads not overcrowded. It will be necessary to widen certain highways. It will be necessary to establish one-way highways. It will be necessary to install gasoline stations, camping sites, and a great many other similar necessities.

Great Need Is for Co-ordination

It would be highly inefficient if this great highway transportation scheme were handled separately by the different factories. The problem is so stupendous that it calls for unified action. It calls for standardized action. Buick cannot go out and establish its scheme without due consideration for Studebaker or Overland or Ford or Reo. There must be a general plan. There must be a general get-together. There must be a great system outlined.

In addition to the necessity for co-ordinated action in different sections of the country, such as New England, the Pennsylvania area, the Twin City area, the Kansas City, St. Louis and the Southeast area, there exists the opportunity for national action. Here is where a national dealers' association could take hold.

Task Should Be Considered Now

Should an exigency such as suggested confront the industry it would call for a stupendous organization such as outlined. To build up such an organization requires time. It is not the work of a day or a week or a month, but one that will require several months to get all of the necessary machinery running in good order.

Now is the time to look ahead on such a problem. The selling season is ahead. The season for the intensified use of the motor car is ahead. There will be fewer people to handle the motor-car merchandising end this year than last. New persons must be trained into the work.

Necessary organizations within dealers and within factories and within communities must be built up.

This is the opportune time to draft the scheme of organization. It is the opportune time to school the different persons into the organizations. *Now, and not in the selling season, is the time to begin on this task.*

Expansion of Business Is Imperative

Go to the Chicago Show

Canada's Message

To the Dealers of

America's Great West

Who Are Going to the

Chicago Show

By Thomas C. Kirby

THE one thing that has made Canada a big power in the war is that her business men have not lost heart.

When the war broke out in August, 1914, our country was at once plunged into the same period of rumor, hysteria and excitement that the United States is going through now.

This lasted for nearly a year, but we finally passed through it, as I believe America will pass through it, and to-day Canada is having the biggest business she has ever had. She is contributing large sums of money to the support of the families of soldiers and has in the field overseas an army that is extremely large in proportion to her population.

It has been possible for her to do these things *ONLY because the business men of Canada acquired a fighting spirit, insisted upon a policy of expansion rather than restriction, and have gone up against this big task with strong hearts and great courage.*

The motor car men have been a large factor in contributing to this healthy and optimistic condition. They have helped to save their own country—and the business men, and especially the motor car men of the United States, have before them a big opportunity to help the United States be successful in the great war.

War Did Not Stop Shows

Perhaps it will illustrate the attitude and spirit of the motor car men if I tell you how the dealers of Montreal have held shows every year since the war broke out, and how to-day Montreal is the only city in the British empire that is holding a motor car exposition.

The result is that in our section the motor car business and other business is prosperous and WE ARE AT THE SAME TIME MAKING HEAVY CONTRIBUTIONS TO WAR WORK.

When the war broke out we had plans for using a Government building and armory, for our show, but just as we were getting ready to use it the military



THOMAS C. KIRBY

Secretary of the Montreal Automobile Trade Association

authorities came along and told us we could not have it. The army had to have the building.

Under a policy of curtailment we would have ceased our activities in order that war work might have its way, but we believe in the policy of expansion and so determined that, while the war must have its way, the motor car show could have its way too. So we began looking around for another building.

We found the Ford building the first year and held the show in that. The building had just been completed and was not yet filled with machinery.

The second year we could not get the Ford building and we began to search for another building. *We were determined that we should have a motor car show and that every effort would be made to keep up business.*

Personally I combed the city of Montreal with a fine toothed comb. I hunted everywhere, but nowhere could I find the building that was adequate for a motor car exhibition.

His Wife Helped Him

One Saturday the directors held a meeting and asked me what I had found. They were hopeful that I had located a building. I told them I had not been able to find anything, and some of them said they guessed perhaps we would have to give up our show, but I asked them to give me another chance and to hold another meeting on Monday, at which I would report.

All day Sunday I drove around hunting for a building. I had just about given up hope of anything when, as we were driving through the downtown section, my good wife, who was with me, said, as we passed a large department store: "There is the building where you ought to hold your motor car show." Her remark proved an inspiration to me and I determined to see the store people the next morning.

I saw them and made arrangements for securing the basement for our show.

But after I had made arrangements

for the lease we were still up against even greater problems. There was no way in which the cars could be put into the basement.

After investigation I found we would have to chop a hole in the back wall of the store and build a ramp down to this lower floor.

We built a ramp at 55 degrees down which to run the cars. After we had done this we found that we could not let the cars down by hand because the weight would be too great and they might get away from us and do damage, so we had to build a hand winch out back of the store and every car was let down that 55-degree incline with this winch.

It took a whole hour for every car, but we filled the basement and WE HAD OUR MOTOR CAR SHOW.

The next year we managed to secure the third floor of the store—and again we were up against trouble. There was no way of getting the cars up to the third floor, so we had to build a great big freight elevator outside the store at a cost of \$4,000, and on the third floor, where we let the cars in, we had to get an architect and have a big hole cut in the outside wall of the building.

We ran the cars up and down this elevator and at the end of the show had to take the whole thing down again and plug up the hole in the wall.

Shows Have Stimulated Business

All of this cost us money, but we were able to hold our show, and we regard the fact that we have never passed up a show since the war began as one of the stimulating factors that have made our business what it has been during the past years and IS TO BE.

To-day there are rumors abroad in Canada that there is to be a gasoline shortage in the Dominion, and that there is to be less importation of cars. This we believe to be untrue and our fixed job now is to convince the people that there is no occasion for alarm or hysteria.

We have had something to fight every step of the way, but we have kept right on fighting and the results have been excellent. Our fight has been against the faint-hearted ones among our own people. It has not been against our Government or anything of that kind.

We have been able to see the wise course that should be pursued by business and our greatest task has been to show the people of the Dominion that they must not lose heart, that business must be kept going if the war were to be made successful, and that all these ideas of false economies and wearing worn-out clothes and old shirts is going to do more harm to our country than any other course we could follow.

I understand that in the period through which America is now passing there are many who are beset to know which way to turn as regards opinion and policy. There are those who believe that business should be curtailed, that there should be a shrinking of activities and that everything should be di-



WILLIAM JENNINGS

Secretary of the Montreal Automobile Trade Association

rected towards "WINNING THE WAR."

As far as "winning the war" is concerned, they are correct. Everything *should be done* toward the winning of the war, but the curtailment of business and the slowing down of industry and niggardly economy—which consists mostly of sack cloth and ashes—is NOT HELPING WIN THE WAR.

Sometimes one has to be a pretty courageous man to stand up and face the strong sentiment that exists against the sale of what some people call luxuries and non-essentials, but it is the measure of a man's strength that he is able to do these things.

If we cut down the business in everything except guns and ammunition we are taking the very life blood out of our country and we cannot win the war or even win a living for those of us who have to stay at home. We must have greater production, greater efforts, bigger business, bigger minds and stronger hearts if the war is ever going to be anything except a mighty victory for the German Kaiser.

And so I say to the dealers from America's Great West, who are about to go to the noted car show in Chicago: "Go to this show with confidence in your hearts that you are a part of one of the most essential industries in the world, that the one great way all business can serve its country is to KEEP RIGHT ON GOING and that there is no room at this time and in so great and powerful a nation for the man whose sole thought is that he should lie down.

Remember that it takes a big man for a big job.

Remember that you have a big country and your big country has tackled a big job, but your big country is no bigger in this emergency than each individual.

A Few Facts About Canada

By William Jennings

President of the Montreal Automobile Company

Increase of automobiles in Canada, 1916 over 1915..... 33,000
Increase of automobiles in Canada, 1917 over 1916..... 59,600
Estimated increase of automobiles in Canada, 1918 over 1917..... 85,000

At an average value of \$1000 per car, Canada in 1918 offers to the automobile industries of the country a market verging upon a value of \$85,000,000.

The number of automobiles registered in Canada during the past three years are as follows: 1915, 83,147; 1916, 116,388; 1917, 176,000. In other words, 1917 shows approximately an increase of 100 per cent over 1915 and 50 per cent over 1916.

The increase of 1917 over 1916 is 59,600 cars for a period of nine months (not twelve) with three months of the year to come, and still going strong.

These figures, for the three years of war-time, tell something of the growth and prosperity of Canada and of the wonderful market it offers for the development and expansion of the automobile industry.

The figures quoted above are for cars alone. Consider, in conjunction with these, the demand created thereby for oils, gasoline, tires and accessories, and you will grasp the significance of the conditions which Canada offers as a market for automobiles and supplies.

Montreal's 1918 automobile show takes place January 19 to 26, and we look upon it as the opening of the biggest business year we have ever had.

Keep the Home Fires Burning

And It Takes Firewood to Do It

By Ray W. Sherman

REILLY, who sold the Sennett in Callawassa and had been at it for a great many years, sat in his office going over the morning mail. Tommy Trumbull, his sales manager, was getting a day's work all lined up and in good shape, when Benny Lawson, one of the junior salesmen, said: "Gee, but ain't business rotten!"

"What do you mean, rotten?" said Tommy.

"Oh," said Benny, "you can't sell anything, nobody wants to buy anything—and I don't know, but it seems to me that we ought not to be trying to take money away from people by selling them things like this. What is everything going to come to unless everybody saves everything he has for the war and—oh, you know what I mean!"

"Business looks pretty good to me," said Tommy.

"And it looks pretty good to me, too," said Reilly, as he turned around and looked at the young salesman.

"Do you really mean what you say?" Reilly asked Benny.

"Yes, honestly, I do. I've thought it all over and I can't see that there is any reason why we should keep on doing business."

Must Work Harder Than Ever

"Well, if everybody felt that way," said Reilly, "there wouldn't be any business and it wouldn't be long before there wouldn't be any war. You are just like a lot of other people who have gotten the wrong sort of stuff into their systems, but I want to tell you that we've got to keep on harder than ever at business if we are to have any sort of active prosecution of the war we are engaged in. Have you ever heard that old war song they sing up in Canada about keeping the home fires burning?"

"Yes," said Benny.

"Well," said Reilly, "did you ever think that it takes something besides sentiment and Government bonds to keep a home fire burning? Do you realize that the people who have stayed at home are going to need just as much money as they ever needed—and more—to buy things to eat, clothes to wear and all the necessities of life that they must have, and did you ever stop to consider what would happen if the people whom the soldiers have left behind were not able to keep on living and buying things to eat?"

"Yes, I know," said Benny, "but what I mean is that people shouldn't buy things that aren't clothes—and things in that class."

"Oh! is that so!" said Reilly. "Well, you just stop and take another think.

Do you remember young George Henderson, the mechanic, who went out of our shop and enlisted in the army? I suppose you happen to know that he has a mother and two sisters. Both the girls work and between them all they run the home. One of the girls works in a department store and the other one is a cashier in a restaurant down town.

"Supposing the department store business falls off; how is one of these girls going to hold her job, and if everybody quits eating in restaurants of the kind where this girl works and goes back home on a rye bread basis, what is she going to do for a job, and if both of these girls loose their jobs, how are they going to keep the home fire burning for the lad who has gone to war?"

More Common Sense—Less Sentiment

"We need common sense a lot more than sentiment in this stuff, Benny, and there is a great need for someone to institute a very active propaganda to show a lot of us just where we would get off if we all went at this restriction thing in the way some of us would like to go at it.

"Supposing that we quit selling automobiles, what would you do for a job? You have a wife and a couple of kids and they have got to eat and have clothes just the same as ever, but I want to ask you again, what would you do for a job if we quit selling automobiles?"

This was a problem to Benny and he didn't have any answer to make.

"Also we have a lot of men here in our organization, and if we shut up shop and quit the car business, what would become of them? I suppose some people would say that they would be released then to go into war work. But can't you imagine the 40 men in our repairshop going out to-morrow and getting war jobs that would buy bread and butter for them?"

"Supposing we threw you out of here to-morrow and told you that we weren't going to sell any more cars. Where would you go and what job would you get and what could you do? Some time there may be an opportunity for you to get into work that is directly connected with the Government, but until that time comes what would you do without a job? Why you'd starve to death.

Must Protect Those Left Behind

"The boys who have gone to war all expect to come back some day, and they hope that in the meantime their going will not have proven a hardship upon those they have left behind. I suppose the boy from our shop who has the sister in the department store and the other in

the restaurant hopes the store and restaurant will be able to keep on doing business so that no hardship will fall upon the family he has left at home, but if you had your way, and no one would buy anything from these department stores except shoes and shirts and those things and anyone who had any bread and potatoes to eat at home would never go near a restaurant, both these girls would be thrown out of their jobs and it might be some time before they could get other jobs. What do you think would happen?"

"The same thing applies to every other line of business activity. If people cease to patronize certain lines of activity they will automatically curtail themselves and one by one and degree by degree the people who are connected with those businesses will find other employment, but for you to go round and preach this short-sighted policy of yours would bring about nothing except a calamity.

"You must remember that, no matter how actively we prosecute the war, only a small percentage of our population can be actively engaged in work that is directly concerned with the war. Not all of us can go to the trenches and not all of us can be used in the manufacture of munitions. So don't you see that the rest of us have got to live some way and we must work at something that isn't directly concerned with the prosecution of the war, although *everything that we do is more closely related to the war than you might suspect.*

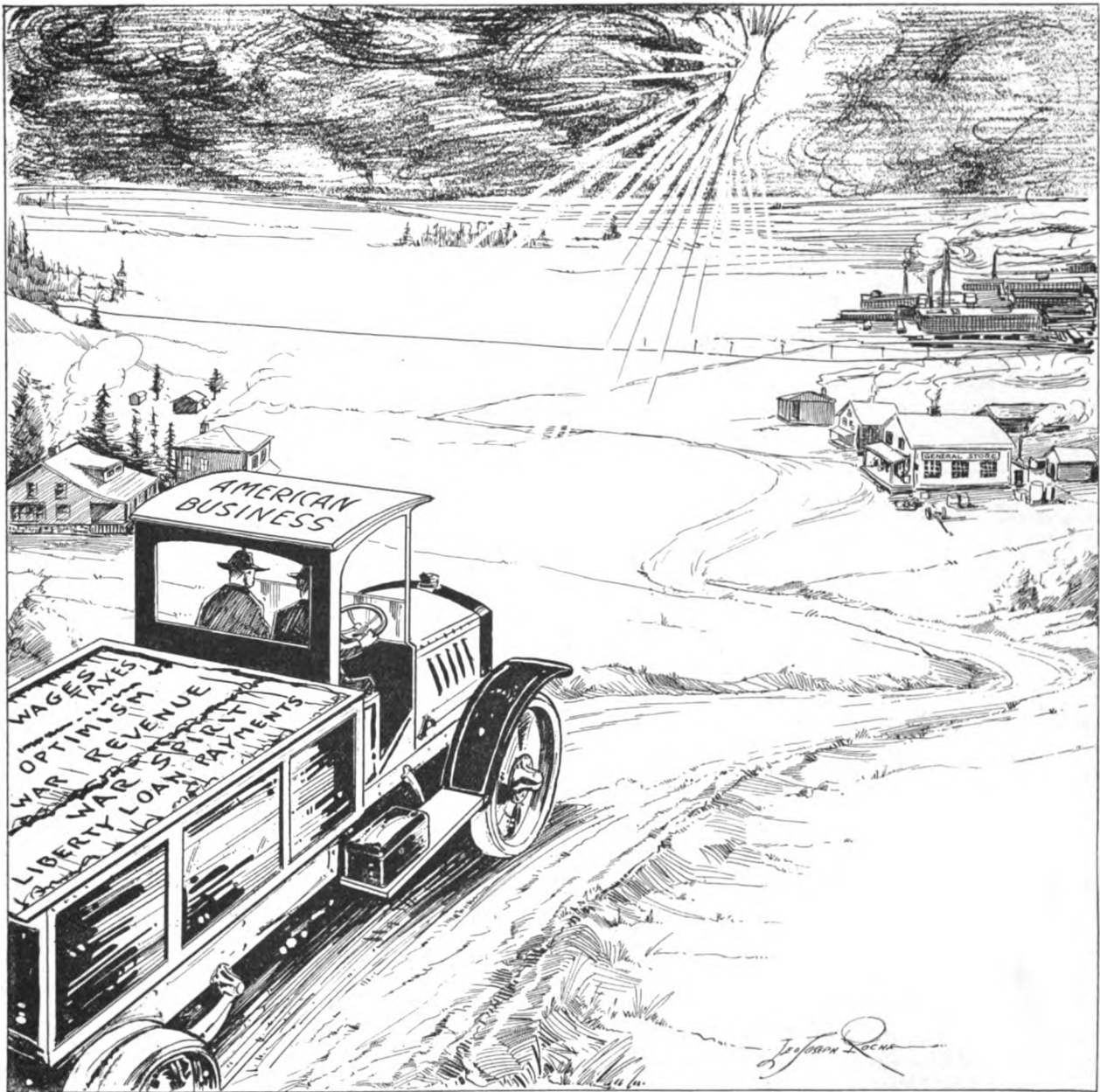
"The men who are engaged in manufacturing shells in a munition factory have to have clothing. The people who are manufacturing clothing have to have other necessities. They may even want here and there a luxury and I honestly believe they are entitled to it if they have the money to buy it.

All Industries Are Interdependent

"Everybody wants something that somebody else makes and so you see one thing leads to another and our entire business and industrial fabric is so closely hitched together that you can't hit it in one spot without affecting it all the way through. Furthermore, you probably have in your mind the idea that the motor car is a luxury, but I wish you would go down town and pick up the first car you find on the street and tell the man that he shouldn't use it any more, and see what a holler he would put up.

"Only the other day we had a terrible snow storm here in town and the street car system went to pieces. The street car people said they fell down, for one reason, because all those who owned cars couldn't get them out and run them and

(Continued on page 61)

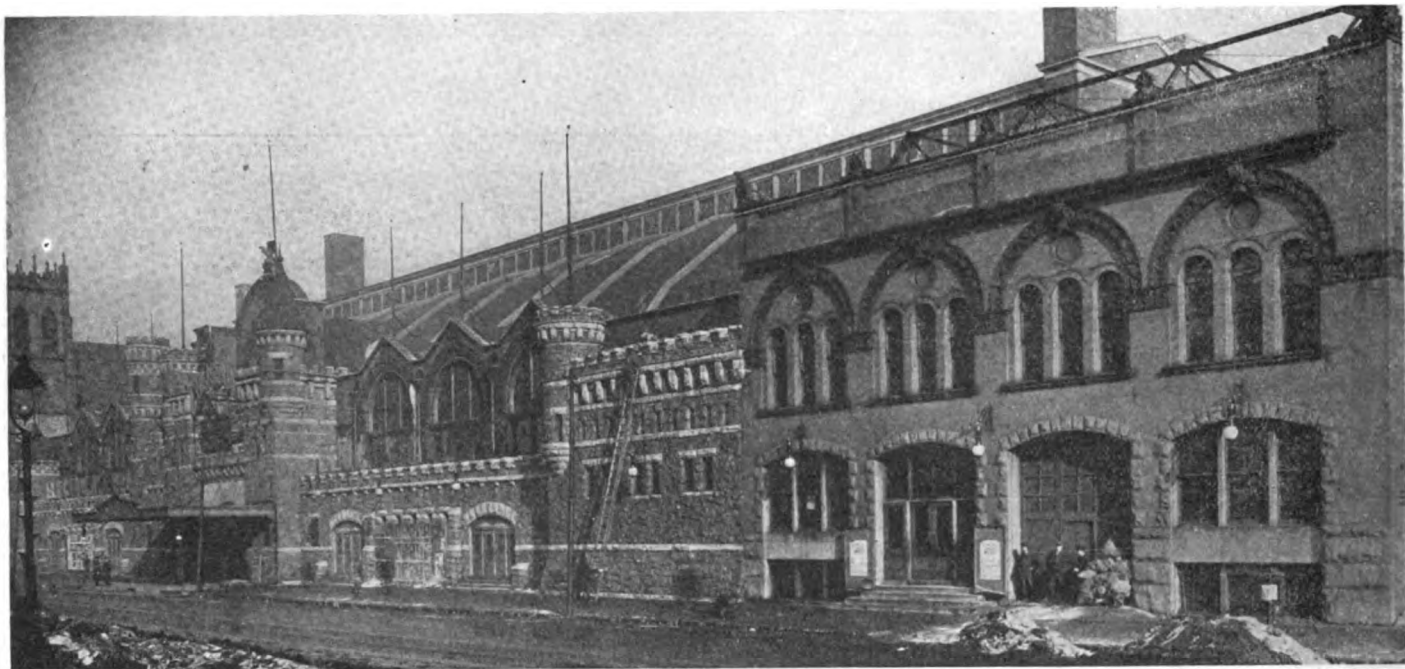


*Keep the home fires burning, while your hearts
are yearning;*

*Though your lads are far away they dream
of home.*

*There's a silver lining through the dark cloud
shining;*

*Turn the dark cloud inside out till the boys
come home.*



Here's the Coliseum in Chicago, where nearly all the Chicago show is held; what is not housed here will be in the Annex and the First Regiment Armory

On To Chicago!

It's the Next Big Event on the Show Calendar and the Greatest of All Dealer Gatherings

ON to the Chicago show! It's the next big thing on the calendar. What promises to be the greatest of all dealer gatherings will start to write itself into motor history when the doors of the Coliseum, not to mention the Annex and the First Regiment Armory, are thrown open on Jan. 26 to remain open until Saturday night, Feb. 2.

It will be Chicago's eighteenth annual exhibition. And as usual it will reveal a lot of products of Western manufacturers who never exhibit at the New York show. Also it will be a greater gathering place of dealers than the Grand Central Palace event, because it always has been.

Chicago stages the business show of the year. The New York show is a social function compared with it. Dealers flock to the Coliseum from all over the great West. Last year more than 3000 of them registered. This year there will be that number at least, and perhaps more.

This year dealers will have additional reasons for flocking to the show. The farmer to whom the Western dealer sells the bulk of his allotment has more money than he ever had before. Crops were good last year and prices have hit new high levels. The farmer is a better prospect now than he ever was.

The New York show has revealed the cream of the new cars and accessories; but there will still be a

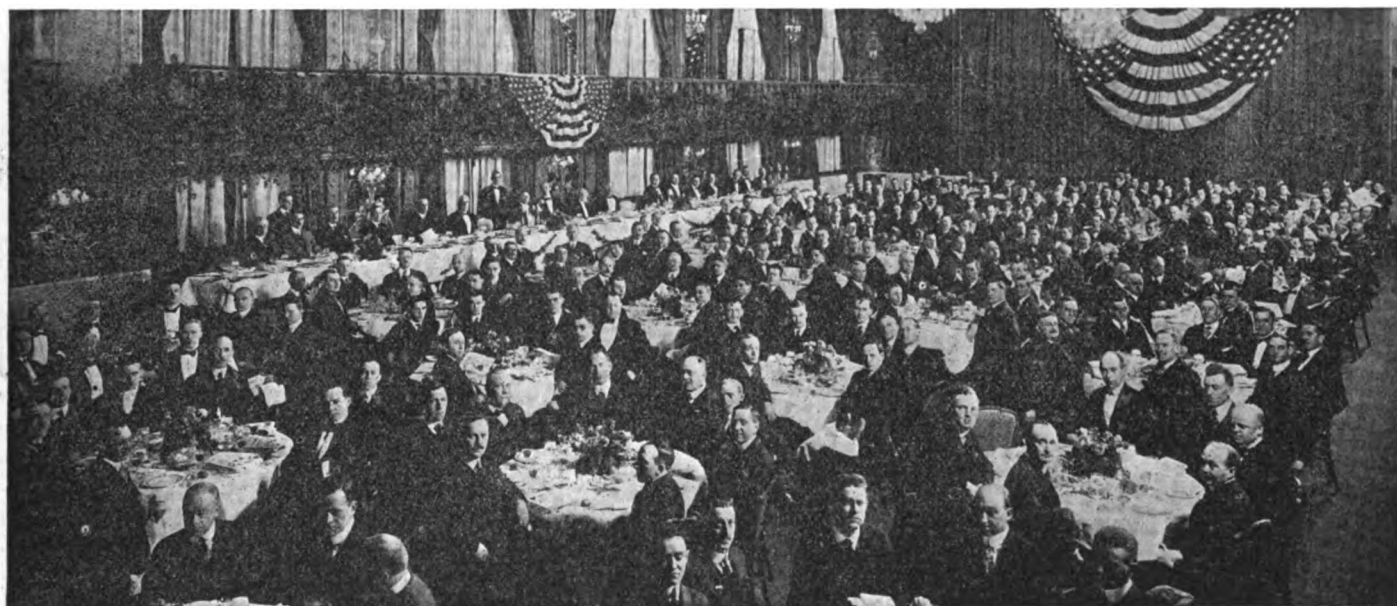
whole lot that is new at Chicago. Nearly a score of accessory makers who were not in the Palace have booked space for Chicago and there will be half a dozen makes of cars revealed for the first time. Last year there were 92 different makes of cars on view in the Coliseum, Annex and Armory. This year there will only be one less. The list of accessory exhibitors is about the same this year as it was last.

Among the new cars are the Comet, Pan-American, Glide, Dorris, Dixie, Hackett, Maibohm and Stephens.

The accessory list contains such names as: Continental Motor Co., Detroit; Edison Storage Battery Co., Orange, N. J.; Imperial Brass Mfg. Co., Chicago; Vesta Accumulator Co., Chicago; Wagner Specialty Co., Chicago; Warner Gear Co., Muncie; Waukesha Motor Co., Waukesha; Johnson Automobile Lock Co., Chicago; Arthur C. Mason, Paterson, N. J.; Ogden Mfg. Co., Plymouth, Ind.; Sipp Machine Co., Paterson, N. J.; Syracuse Wrench Co., Syracuse, N. Y.; Tobey Polish Co., Chicago; Tuthill Spring Co., Chicago; Wales-Adamson Co., Chicago.

These will be strong drawing cards for visiting dealers, but the really big drawing card is the good fellowship which prevails. The Chicago show is the handclasp show; it is the place where old friendships are renewed; where the dealer from the Pacific Coast greets the dealer from the East and the two of them share the hospitality of the Middle West.

Where Dealers Gathered During Show Week



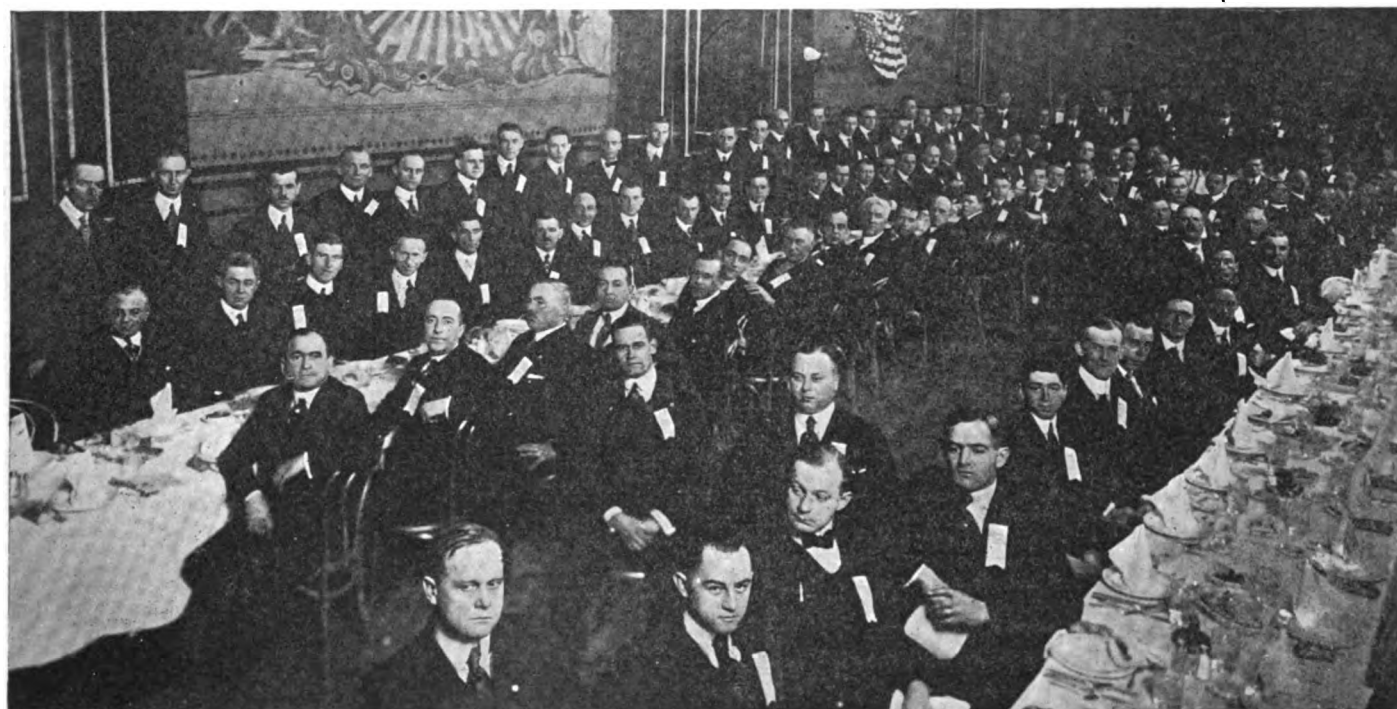
Dealers and Distributers of the Maxwell-Chalmers Organization

NEW YORK, Jan. 12—"Every dollar must be made to work," said Isaac F. Marcossan at the Chalmers-Maxwell dinner at the Biltmore last night. "Thrift may become a vice instead of a virtue," he added, in speaking of the now famous gospel of the ragged overcoat being a badge of honor, for, he said, if the

wearer of the coat caught cold he had done damage and not good.

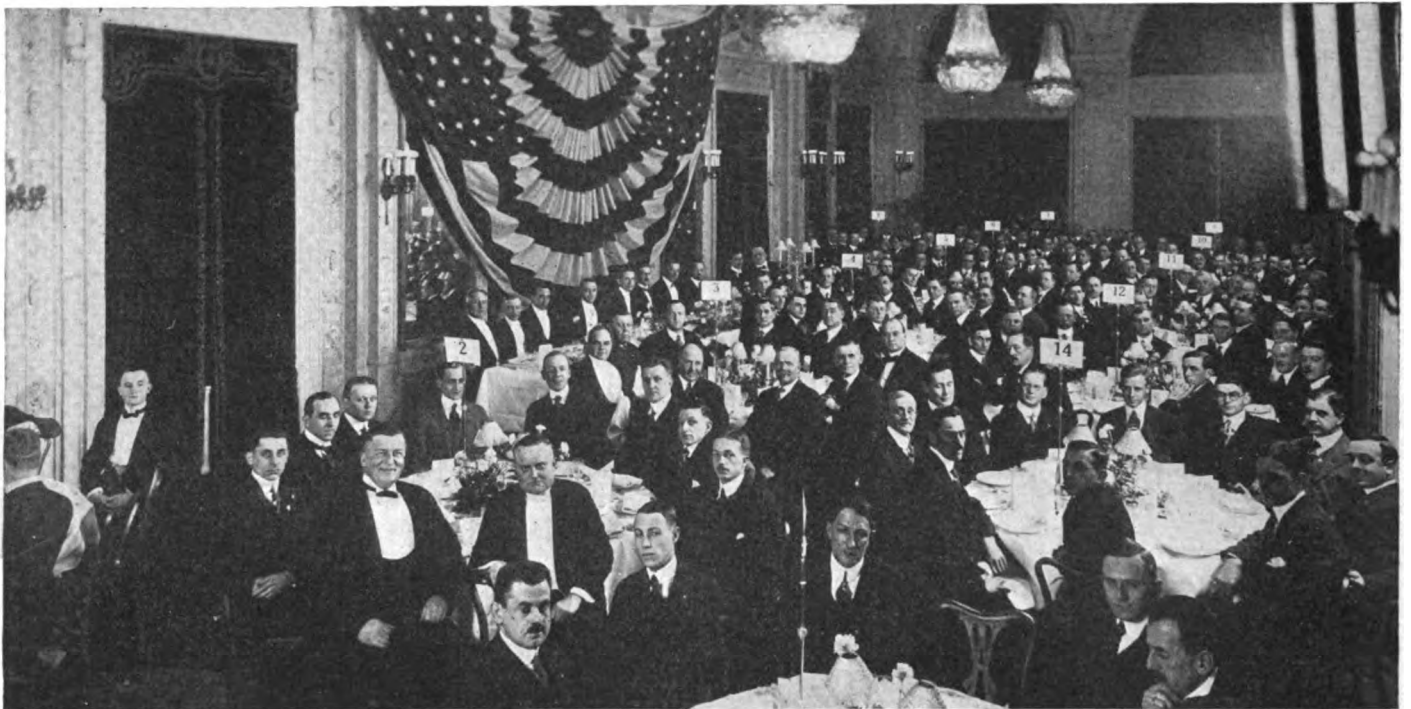
Edmund J. Cattell, statistician, of Philadelphia, said he believed in optimism and that we should "use the telescope more and the microscope less." He cited the motor car as one of the means the business man has of keeping efficient.

Arthur Brisbane, editor of the New York Journal, spoke of the absurdity of calling the motor car a "pleasure car." He said one might just as well say "pleasure" feet, or "pleasure" wings of a bird. Brisbane said the war would be won by thinkers. Herbert Kauffman also spoke.



Banquet of the Cutting-Larson Co., New York Oldsmobile Dealer

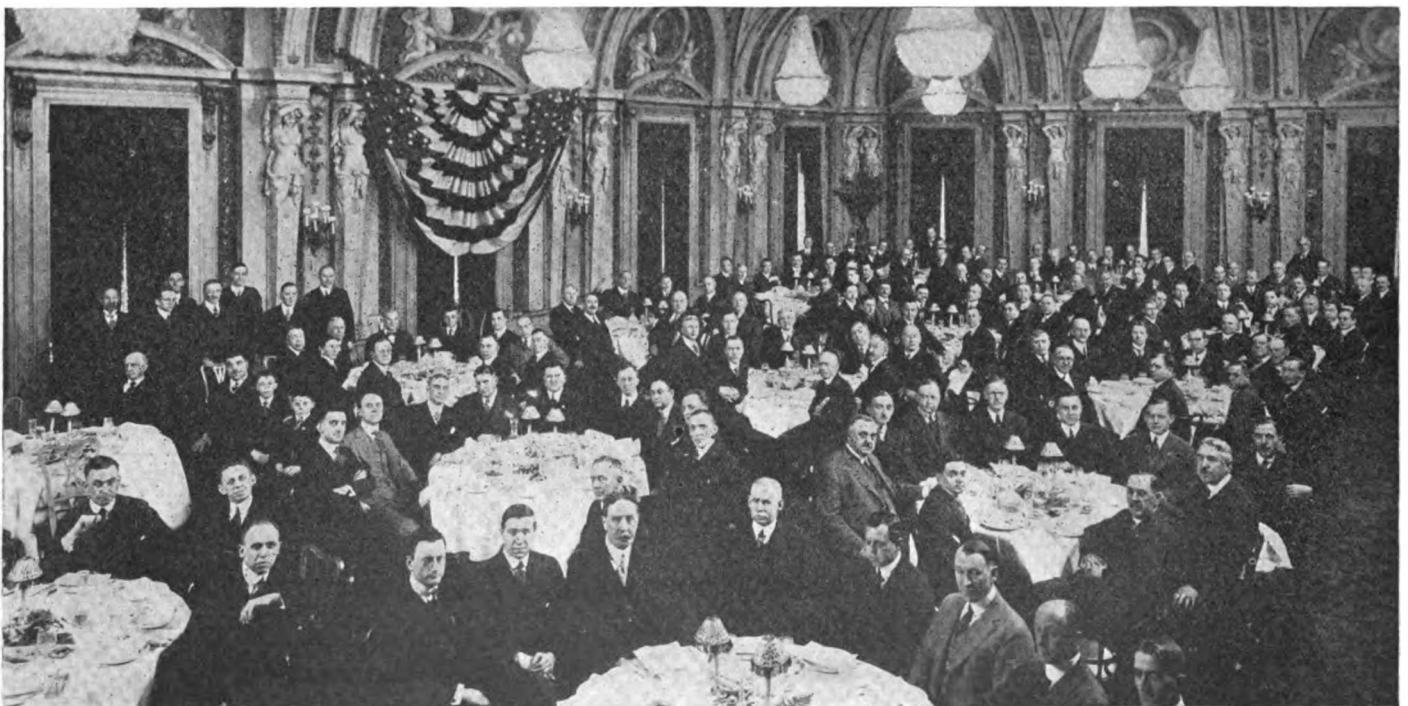
Dealer Dinners That Featured Show Week



Distributers of the Smith Form-A-Truck Association

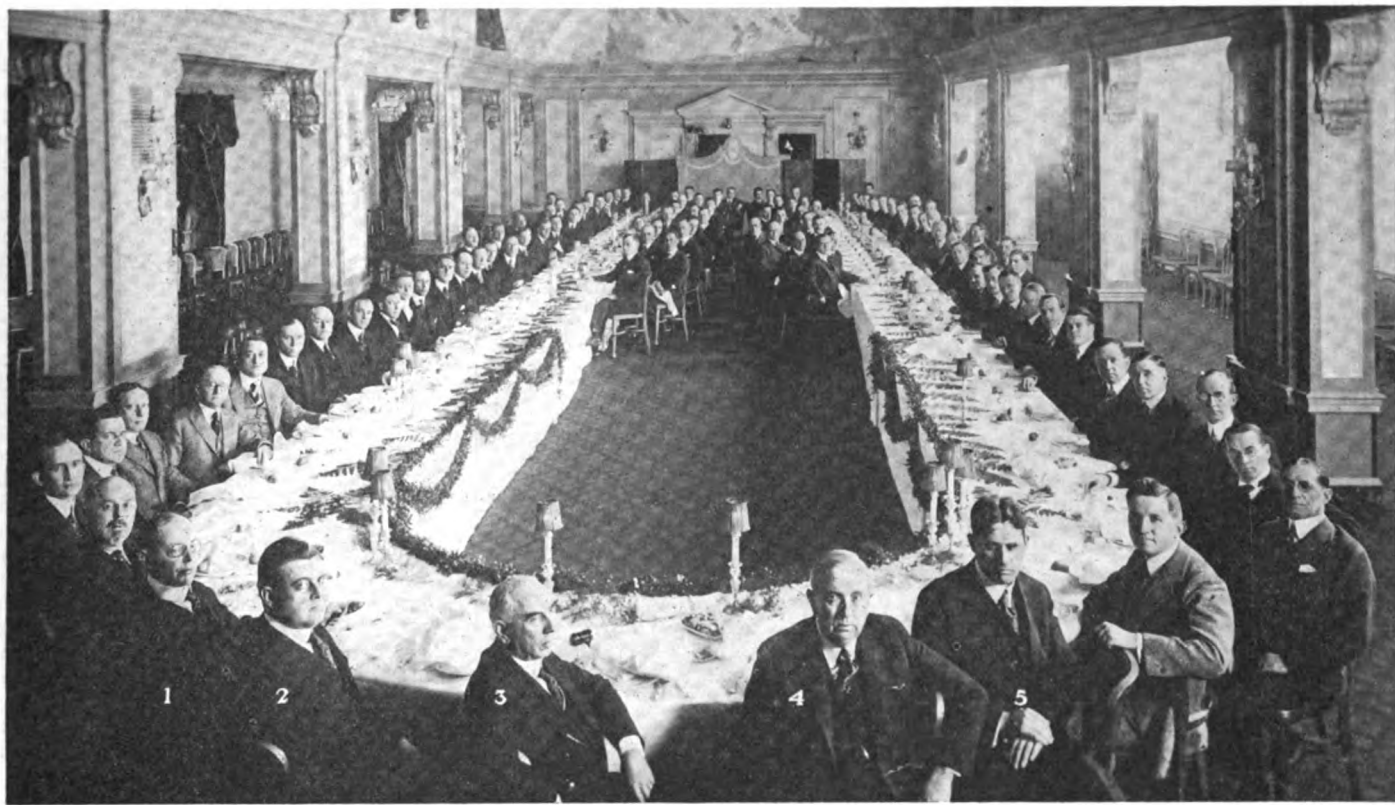
One of the notable features of the Show in the way of dealer gatherings was the banquet given by Cole & Dixon, Inc., New York distributor for the Smith Motor Truck Corp., in the East Ballroom of the Hotel Astor. Dealers and distributors handling the Smith Form-A-Truck were present from all parts of the country.

D. W. Figgis, president of the Smith Motor Truck Corp., outlined the broad sales policy for the coming year. Other speakers included F. Berry Rockwell, Mr. Gotschall, C. M. Strieby and James Newell. The banquet was in the nature of a jollification get-together of Smith Form-A-Truck enthusiasts.



Annual Get-Together of the Cycle Parts and Accessories Association

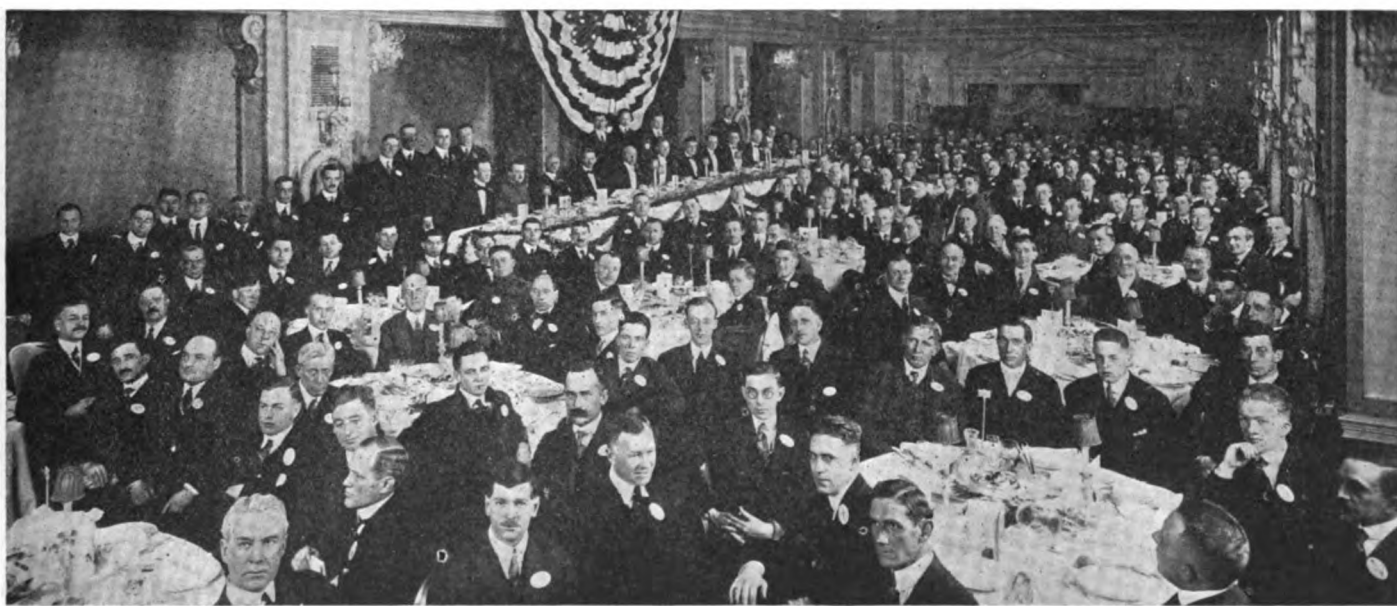
Dinners That Mixed Business and Pleasure



Representatives of the Class Journal Co., Publisher of Motor World

This is but part of the organization which gathers each year during the New York show. Those who bear numbers are:

(1) E. M. Corey, Treasurer; (2) W. I. Ralph, Vice-President; (3) H. M. Swetland, President; (4) A. B. Swetland, General Manager; (5) David Beecroft, Directing Editor of Motor World



Third Annual Banquet of the Racine Rubber Co., of New York

Annual Banquet of the Motor and Accessory Manufacturers' Association, held during Show Week



Wave of Optimism Follows the Show

**Business Not Quite as Good and
Attendance Off a Little Though
Results Are Rated High**

NEW YORK, Jan. 12—Greater spirit for a good year during 1918 is manifest to-day than a week ago, when the New York show opened. If the show has done nothing else it has shown the country that the industry still is on the map and turning out a product that has been revised and improved during the recent months of war just as the car has been improved in every other year.

All of those who were asked to-day said the show without question had been worth while. Business, especially at retail, was not up to the figure of a year ago, and the attendance was not as large, but the results are nevertheless regarded as very gratifying. It is anticipated that some of those who formerly made the long journey from the far West to the New York show will this year make the shorter trip to the Chicago show instead.

At the dealer dinners held during the week the story was one of courage for the dealers, many of whom came to the show in a rather wilting attitude. This attitude has been largely corrected, say the exhibitors, and a better tone is expected as soon as the dealers get back into their territories.

Rowerdink Staves Off Trouble

ROCHESTER, N. Y., Jan. 15—W. H. Rowerdink & Son, a jobbing house, is endeavoring to avoid complaints about shipments by mailing with statements and other mail a small card bearing these remarks:

Do You Know—

That it takes nearly twice as long to deliver mail to you as it did before war was declared?

That there is a shortage of transportation equipment resulting in congestion everywhere and that shipments made by us to our customers are delayed for this reason?

That every few days embargoes are declared on the leading transportation lines and only government goods are accepted for shipment?

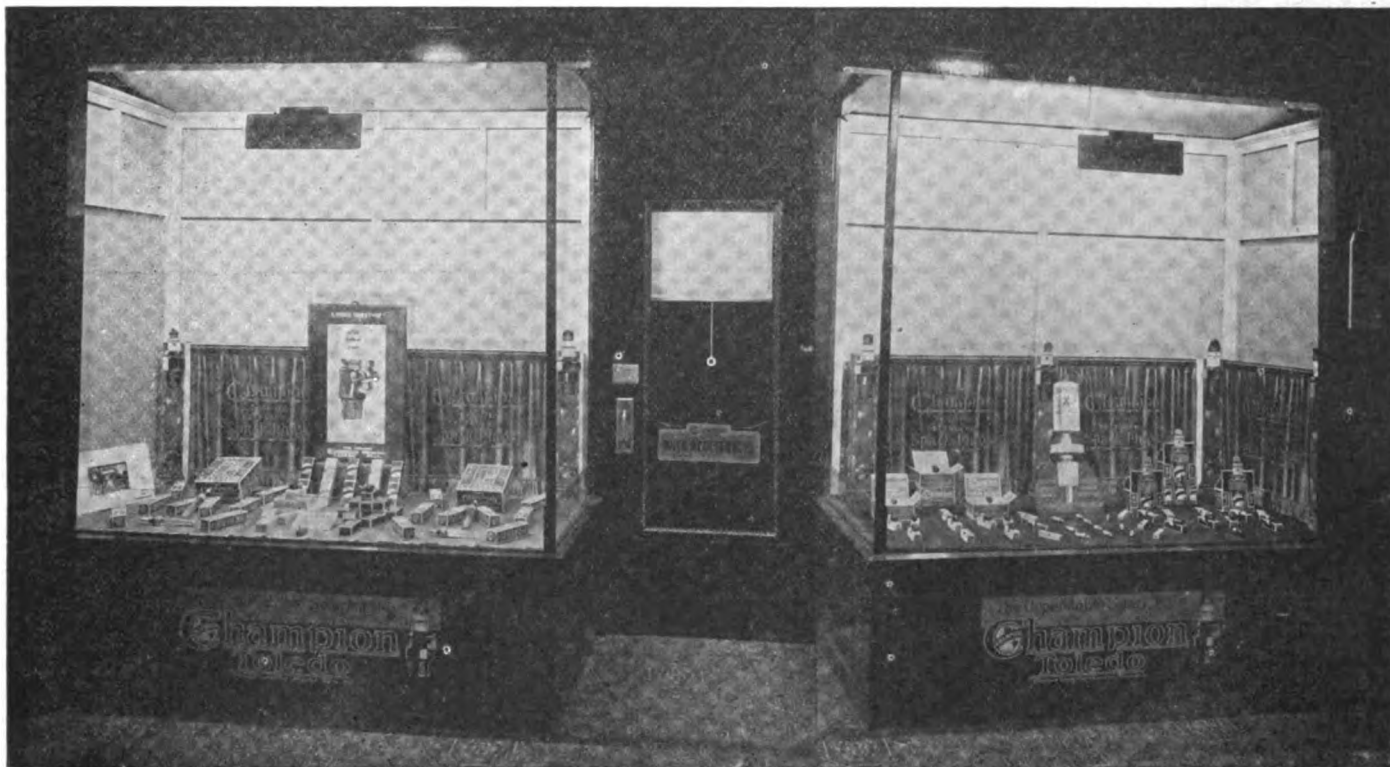
That all American business men alike are facing this problem and striving as best as they can to rebuild their organizations in the face of discouraging conditions?

That you can help "do your bit" by anticipating your requirements as far in advance as possible, by being patient when delays occur and by realizing we are not responsible for the above conditions, but are doing our best to contend with these adverse circumstances?

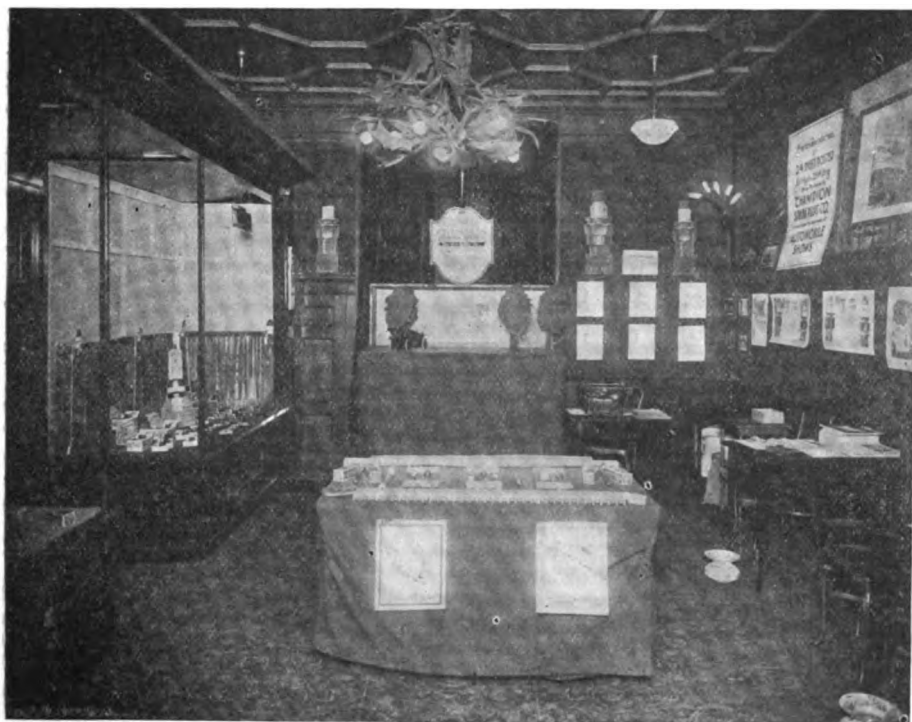
Ford Holds Profit Sharing Banquet

DETROIT, Jan. 14—The annual Profit Sharing Banquet of the Ford Motor Co. was held at the Statler Hotel here, Saturday. The event was celebrated to commemorate the start of the profit sharing and welfare system. About 300 were present, including Henry Ford.

Showing the Dealer How to Trim Windows



THE Champion Spark Plug Co., Toledo, had the most elaborate of the dozen or more specially designed and set up exhibits that were held in some of the big New York hotels during the week of the show. Along one side of a large room a complete store front was set up. This was done to show the proper manner to dress Champion windows and as a guide to the hundreds of dealers and jobbers who visited the exhibit. This view shows only the store front. What appear to be curtains on small square parts are merely cardboard cut-outs that Champion is furnishing. These enable the garageman with no window background to achieve a good merchandising effect

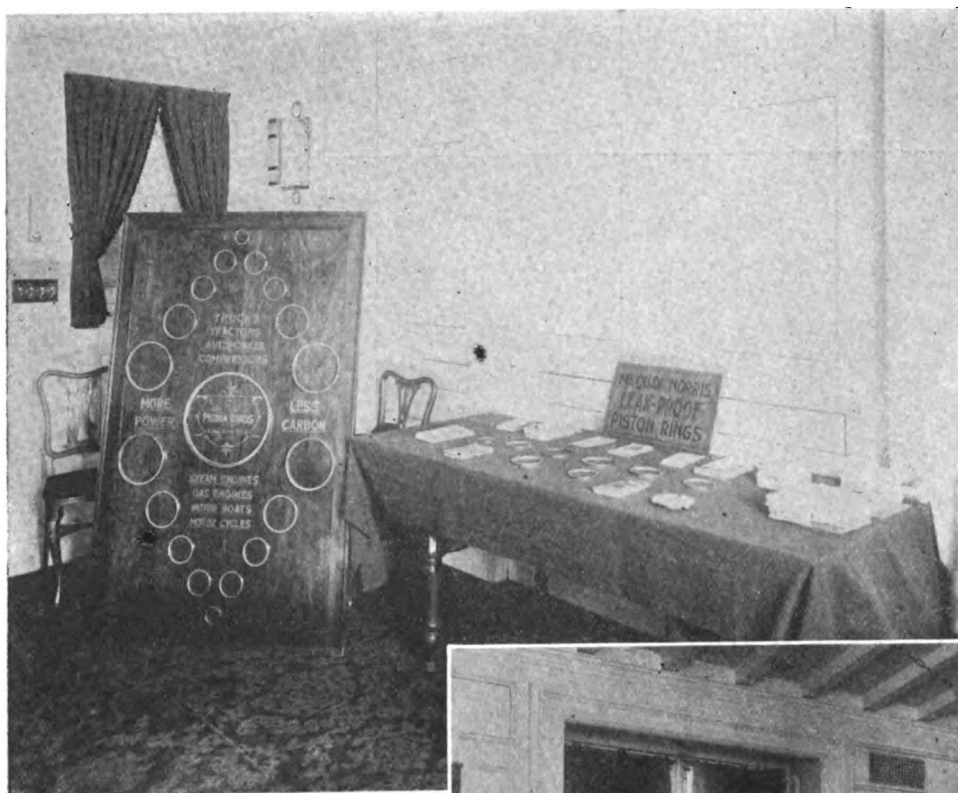


How a Dozen Makers Have Taken Advantage of the Comparative Quiet and Privacy of a Hotel Room Exhibit.

When the visitor entered the Champion room this is what he saw first. When he turned to the left, he saw the elaborate store front which is pictured above

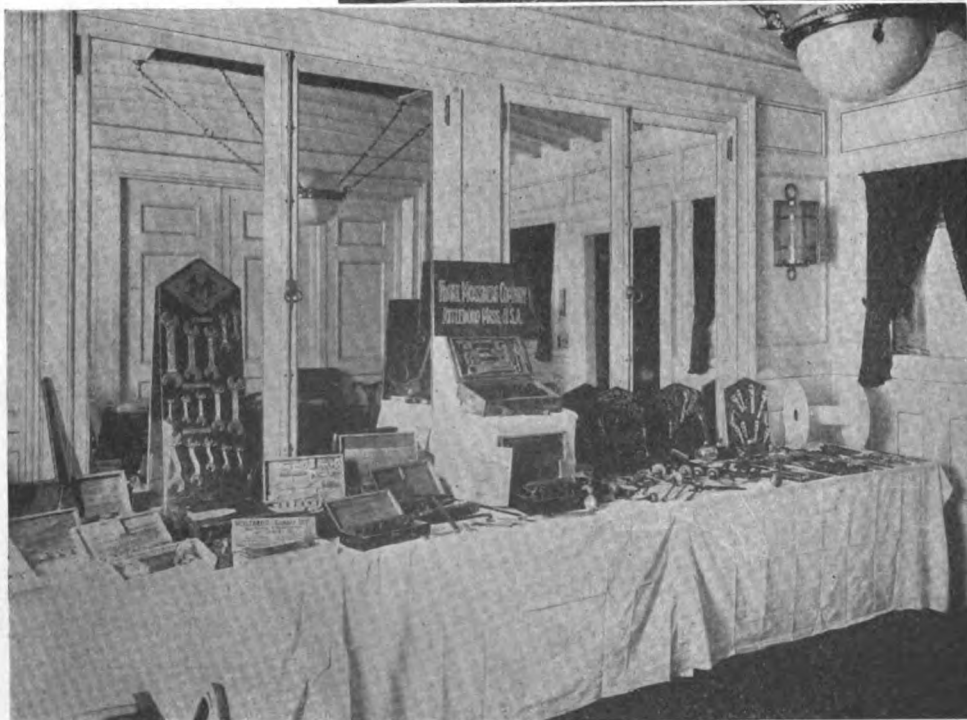
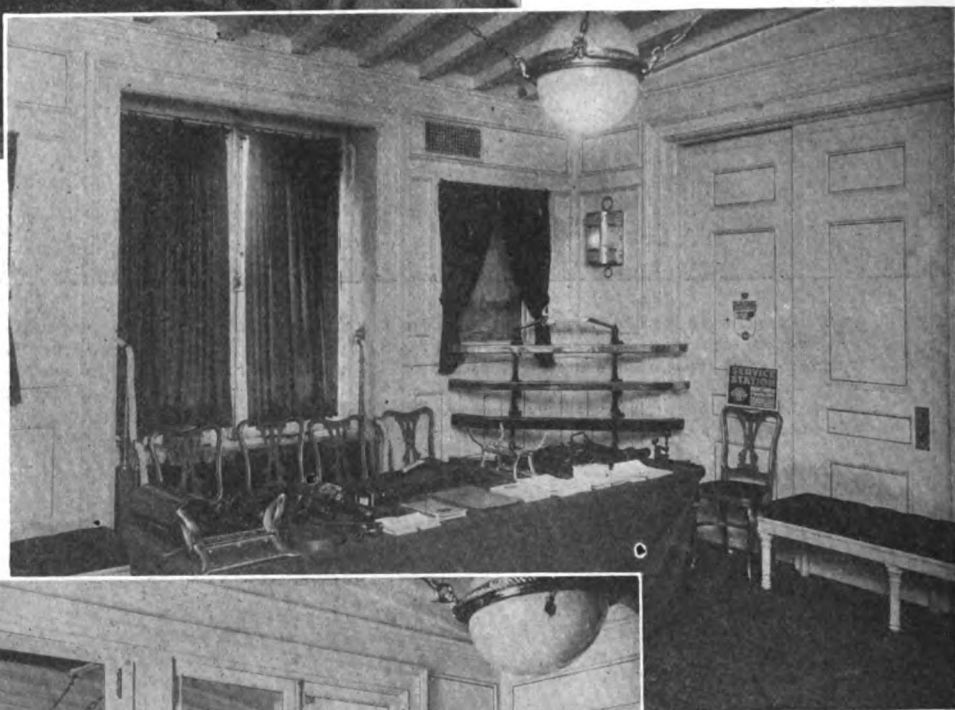
TURN THIS PAGE. THERE ARE MORE PICTURES LIKE THESE.

How to Show in



The McQuay-Norris Mfg. Co. had a simple hotel exhibit. But it was a haven of rest after the turmoil of the Palace show, and, incidentally, a place where much business was transacted. Thus, the Leak - Proof headquarters served a dual purpose

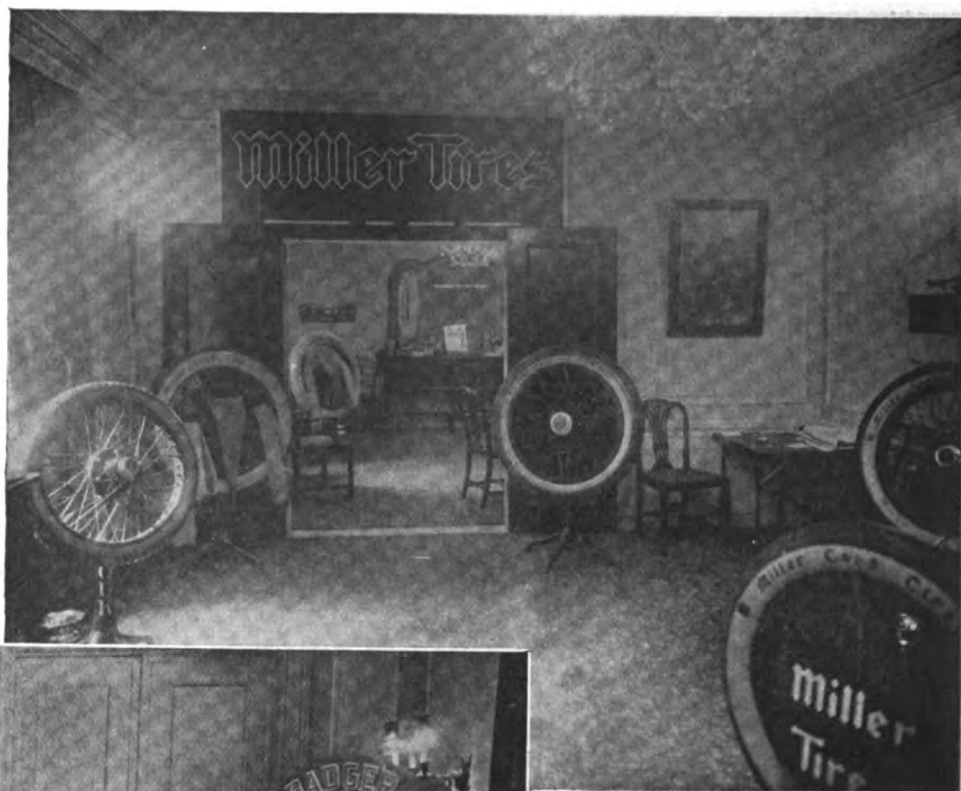
This is how the Garage Equipment Mfg. Co. spread out its wares for the inspection of dealers and jobbers in its hotel room during the show. Every year as the shows grow larger and more crowded, hotel exhibits like these are getting more popular



Somewhat more elaborate than either of the other two on this page was the display arranged by the Frank Mossberg Co. Practically every product manufactured by the company is exhibited on this table

a Hotel Room

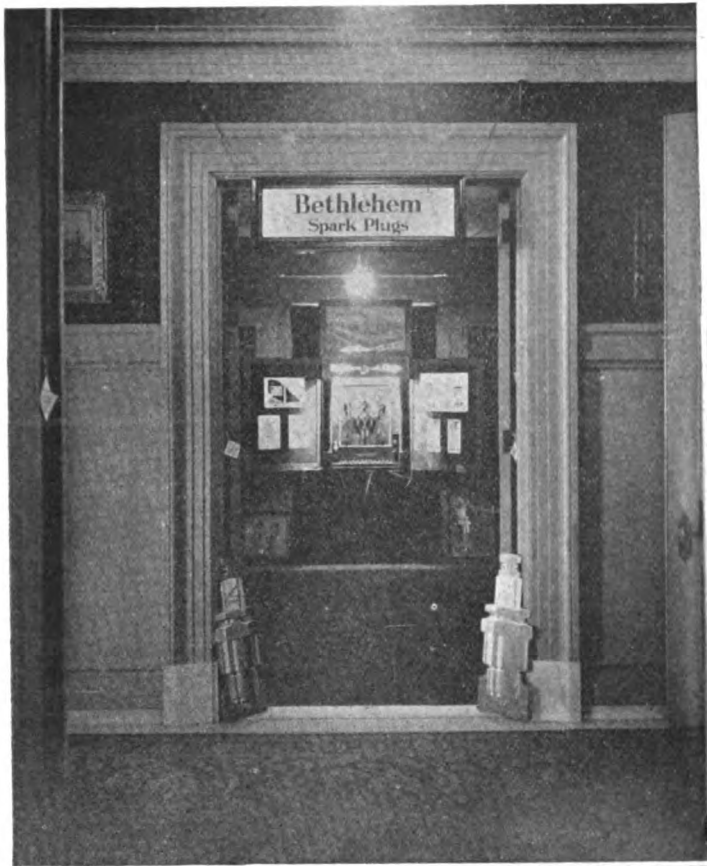
The Miller Tire Company arranged one room as a foyer. Notice that even the position of the wire wheels invite the visitor into the other room where there was displayed a complete line of Miller products



Five manufacturers shared this exhibit room. They are the Tri-Continental Corp., the Motor Specialties Co., the Packard Electric Co., the Bailey-Drake Co. and Auto Parts Co.

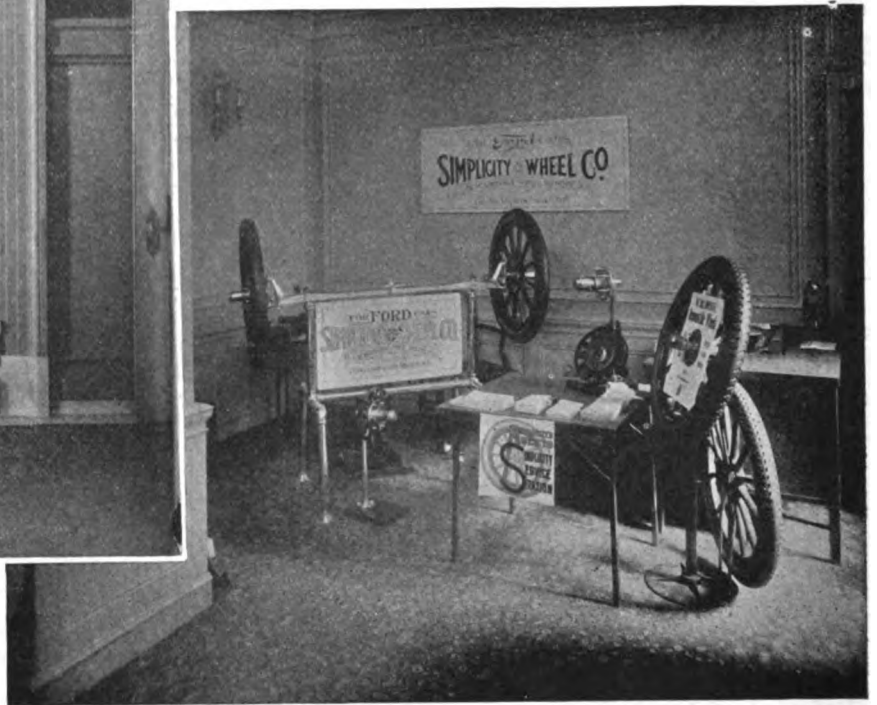


The Rayfield exhibit gives a good idea of what can be done by way of making a hotel exhibit attractive and of a genuine merchandising value. Probably it would be impossible to show carbureters to better advantage than by utilizing stands such as those illustrated

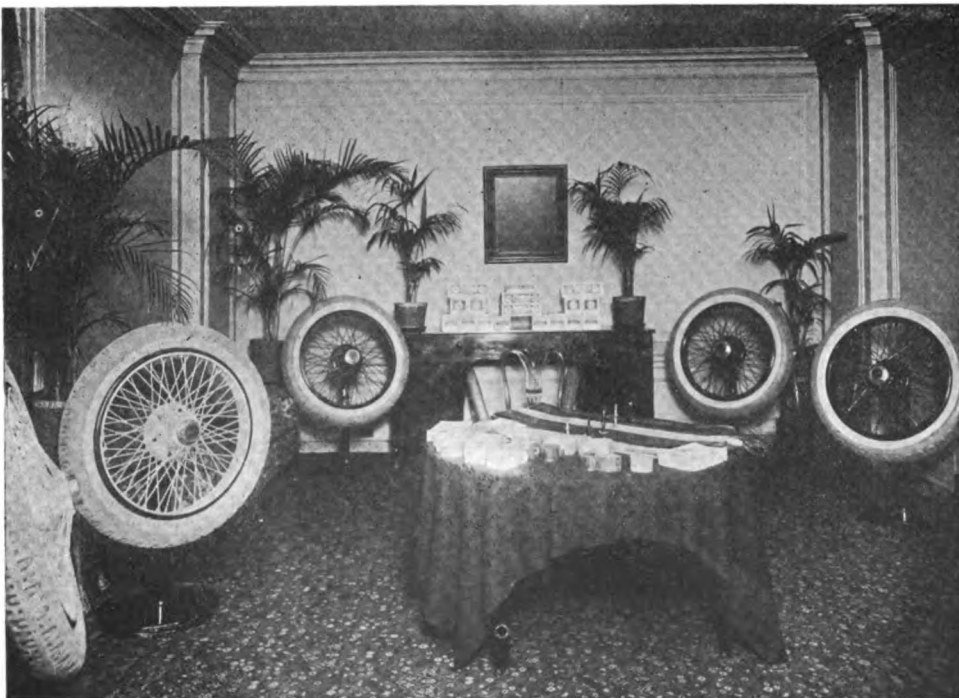


This is the inviting entrance that was arranged by the Silver Co. for its exhibit of Bethlehem spark plugs. Inside there was an elaborate display case with a complete line of plugs illuminated by a battery of brilliant spotlights

More Good Hotel Exhibits



The Simplicity Wheel Co. did not have much in its room, but what it had was well arranged with an eye to showing all there was to show about Simplicity wheels, their appearance, construction and method of application



The Norwalk Tire & Rubber Co. had one of the most attractive of all the hotel exhibits. The palms lent an additional air of quiet and were in soothing contrast to the hurry and bustle and crowds of the Palace show

Men You Will Meet

AT THE CHICAGO SHOW

THESE Men You Will Meet at the Show are in two lists—Cars and Accessories. Those before which is an asterisk (*) are delegated by their companies to give especial attention to dealers and to handle dealers' business. The name of the hotel at which the company will make its headquarters, aside from the exhibit at the show, follows the company's name.

ACCESSORIES

Amazon Rubber Co.—New Southern—*Frank W. Kurtz.
American Hardware Corp.—Headquarters, 335 Wells St.—*R. A. Sundvahl, *C. J. McCurry, *S. W. Ford, *A. F. Breither.
Armstrong Cork Co.—La Salle—*George T. Turner, *E. F. Ebberts, F. L. Munroe, John C. Stagg.
Bay State Pump Co.—Sherman—*A. J. Bolger, J. W. Murphy.
Black & Decker Mfg. Co.—Fort Dearborn—*William E. Jordan, S. D. Black, W. F. Meyer, R. H. Smith.
Bosch Magneto Co.—Headquarters, 3737 Michigan Ave.—*William Brown.
Bound Brook Oil-Less Bearing Co.—La Salle—George O. Smalley, Harry J. Lindsley, Nate A. Wade, William F. Jennings, J. Bertram Howell.
Challoner Co.—La Salle—*Otto Kaufman, G. S. Everhart, Harry Van Horn, William Krug.
Champion Ignition Co.—La Salle—*W. S. Isherwood.
Corcoran Mfg. Co.—Sherman—*W. R. Hughes, Martin Murray.
Esenkey Products Co.—*J. A. Jones, F. D. Mayer, A. H. Knodell, J. A. Jones, A. H. Lipman.
Findelsen & Kropf Mfg. Co.—Auditorium Annex—*E. V. Swanstrom, *G. R. Lundane, E. A. Bates, M. F. Colvin.
Fitzgerald Mfg. Co.—Great Northern—*J. P. Hutchison.
Gemco Mfg. Co.—Congress—*L. A. Raasch, *George H. Treviranus, *John Craig, *C. N. Jonas, *R. D. Jonas, G. F. Discher, Martin A. Dewey, Jr.
Gibraltar Jack Co.—Congress Annex—*A. F. Wagner, R. L. Whitman.
Gray & Davis.—Blackstone—*William Gray.
H. & D. Co.—La Salle—*C. W. Romine, *D. M. Peck, H. F. Little, L. D. Romine.
Heinze Co., John O.—La Salle—*R. B. Melin.
Humboldt Machine & Stamping Co.—*F. Furrelle, *M. L. Berkowitz, R. W. Russell, H. R. Andarlese.
Imperial Brass Mfg. Co.—headquarters, 1290 W. Harrison St.—*W. S. Noyes, *A. H. Framhein, F. McNellis, C. E. Young, J. Schroeter, J. Pettis, E. Kaufman.
Kellogg Mfg. Co.—Blackstone—*Messrs. Anstice, Monson, Coates, Kirk and Edwards.
Klaxon Co.—Blackstone—*D. A. McConnell, *E. Berg, *Walter P. Coghlan, F. B. Ruoff, R. L. Wilkinson, P. M. Farmer, P. Peiffer, Jr.

Laidlaw Co., Inc.—Congress—*William R. Laidlaw, *James H. Johnson, *Frank J. Partlan, William A. Sweetland, Clyde B. Juff.
Laminated Shim Co.—Blackstone—Bradford Darrach, Charles S. Munson.
Marvel Accessories Mfg. Co.—La Salle—*S. I. Rose, E. T. Thalman, Sig. Miller, O. S. Kenzy, C. J. Collings, J. C. Clare.
Menominee Electric Products, Inc.—Blackstone—*M. Feldine, and Mr. Ruzicka.
Merchant & Evans Co.—*Messrs. Reeves, Arnharst, Gibb.
Miller Transmission Co.—*Dorr Miller, *Edmond Quincy, *E. R. Packer, *E. L. McIntyre.
Mosler & Co., A. R.—Sherman—E. Gluckauf, C. D. Parr, J. W. Fischer, A. R. Mosler; Clarendon Beach—T. J. Burns, G. W. Fischer, H. H. Meyer.
Ogden Mfg. Co.—*D. Ogden, *P. D. Kinney, L. E. Ogden.
Charles Schutte Body Co.—Congress—C. E. Schutte, A. E. Effrig.
Shaler Co., C. A.—La Salle—*R. B. Dunlap, *M. E. Faber, *R. E. Malone, *W. R. Melcher.
S K F Ball Bearing Co.—*C. R. Mabley, H. N. Trumbull, G. A. Ungar, C. C. Walsh, J. B. Castino, A. J. Gillespie, F. J. Rider.
Spencer Metal Products Co.—New Southern—*George Bouthinon.
Stewart-Warner Speedometer Corp.—Blackstone—F. H. Martin, Sherman House, Berne Nadall, L. L. Banford, Morrison—E. F. Morford, D. F. Hyland, J. C. Stiles, William H. Fry, F. O. Fleischer, W. J. Browne, L. W. Peterson, A. A. Ungar, O. L. Head; also Chicago res. C. B. Smith, W. J. Zucker, G. B. Wright, Wegg Jay, S. Kraus, John Genn, Victor W. Peterson, Frank Ross, John W. Poppert.
Stromberg Motor Devices Co.—headquarters, 58 E. 25th St.—*W. L. O'Neill, J. C. McMichael, *M. J. Kirk, and Messrs. Simons, Hart, Henes.
Syracuse Universal Mfg. Co., Inc.—Fort Dearborn—*Stephen L. Young, *Arthur S. Viail.
Taft-Pierce Mfg. Co.—La Salle—*R. E. Carpenter, J. E. Riley, A. A. Martell, C. S. Collinson, W. H. Oliver, Jr.
Tuthill Spring Co.—headquarters, 760 Polk St.—*D. S. Campbell, H. H. Osborne, A. A. Dalley.
United States Gage Co.—Congress—*M. M. Lawler, *R. E. Bruckner, *Joseph Hollee, *George R. Beamer.
Universal Tool Co., Inc.—La Salle—*C. H. Hinckley, *R. E. Roseberry, *Donald McGraw, Enoch H. Herman.

Vacuum Oil Co.—*R. L. Wright, *W. W. Harrington.
Wire Wheel Corp. of America—Auditorium—*O. J. Rohde, Frank A. Storer, Ralph D. Webster.

CARS

Allen Motor Co.—J. E. Wright, V.-Pres.; R. G. Ewell, Adv. Mgr.; R. B. Perry, Sec.; W. O. Allen, Treas. and Gen. Mgr.; L. A. Sommer, Con. Engr.
American Motors Corp.—Auditorium—Robert Bursner, Treas.; W. T. Miller.
Anderson Electric Car Co.—Congress—G. D. Fairgrieve, E. P. Chalfant, B. C. Downing.
Anderson Motor Co.—Congress—J. W. Anderson, V.-Pres.; H. H. Hobbs.
Apperson Bros. Automobile Co.—Congress—Edgar Apperson, Sec.-Treas.; T. E. Garrard, V.-Pres. and Sales Mgr.; George H. Strout, W. S. Beers, R. M. Kelvie, S. L. Kimball.
Auburn Automobile Co.—J. I. Farley, Sec. and V.-Pres.; M. Garrett.
Austin Automobile Co.—Congress—W. S. Austin, V.-Pres.
Baker R. & L. Co.—R. M. Owen, M. A. Watertson, H. H. Doering, A. C. Faeh, W. G. Pancoast, Paul Frank.
Briscoe Motor Corp.—Congress—L. E. Wilson, V.-Pres. & Sales Mgr.; Guy C. Core, Adv. Mgr.; Wayne Hearne, Jack Graf, J. R. Findlater, C. E. Elchinder, J. T. Anderson, Charles Salak, T. A. Burgess, E. M. Doty.
Bulck Motor Co.—W. P. Chrysler, Pres. and Gen. Mgr.; E. T. Strong, Sales Mgr.
Cadillac Motor Car Co.—Congress—R. H. Collins, Pres. and Gen. Mgr.; D. McCall White, Chief Eng.; E. C. Howard, Sales Mgr.; L. McNaughton, Asst. Sales Mgr. J. O. Harris, George H. Gaston, E. C. Gorman, E. P. Merrill, Fred Schleuter.
Chalmers—Maxwell Motor Sales Corp.—Congress—T. J. Toner, Sales Mgr.; A. J. Banta, Asst. Sales Mgr.; H. W. Miller, C. H. Becker, R. C. Reichel, J. M. Robbins, R. F. Keeler, J. R. Whiting, Gordon Muir, Adv. Mgr.; Christy Walsh, Publicity Mgr.
Chandler Motor Car Co.—Congress—F. C. Chandler, S. Regar, J. M. Dunlap, S. Black, G. M. McGinnis, K. R. Spencer, S. C. Hanna, J. V. Whitbeck.
Chevrolet Motor Co. of Mich.—Blackstone—W. C. Sills, T. J. McMullen, A. B. C. Hardy.
Cole Motor Car Co.—Congress—J. J. Cole, C. P. Henderson, J. E. Roberts, H. R. Hyman.
Columbia Motors Co.—Blackstone—*W. L. Dalv, *F. E. Sangbush, J. G. Bayerline, A. T. O'Connor, George J. Martin.

- Crow-Elkhart Motor Co.**—Congress—M. E. Crow, Pres.; M. E. Hoshaw, Sales Mgr.; A. A. Handler, Chief Engr.; C. W. Coll, H. A. Deltch, H. D. Wilson.
- Cunningham, James, Son & Co.**—Blackstone—*C. A. Baird, George W. Costello.
- Davis Motor Car Co.**—G. W. Davis, Pres. & Sec.; R. M. Beck.
- Dixie Motor Car Co.**—La Salle—*A. B. Chalmor, *F. H. Holman, *C. N. Mullican, R. V. Board, W. B. Beckman, J. F. Murphy, Charles Redecker.
- Dodge Bros.**—Blackstone—A. I. Philp, Sales Mgr.; George C. Hibbs, Asst. Sales Mgr.; A. E. Barker, C. W. Matheson, G. H. Phelps, Adv. Mgr.; H. M. Robins, Russel Huff, Chief Eng.; F. J. Haynes, Factory Mgr.
- Doble-Detroit Steam Motors Co.**—Blackstone—*T. P. Myers, M. J. Hammers, Abner Doble, C. L. Lewis, R. H. Thayer, E. C. Thompson.
- Dort Motor Car Co.**—J. D. Mansfield, F. S. Petrie, H. S. Daniels, C. F. Applegate, J. R. Van Cleve.
- Elgin Motor Car Corp.**—Morrison—C. S. Riemann, V.-Pres.; C. F. Jamison, A. L. Tull, Sales Mgr.; H. W. Huffman, George L. Brush, F. M. Goodman, W. E. Bertsch, Adv. Mgr.; M. Edwards, Jr.
- Elkart Carriage & Motor Car Co.**—W. H. Patterson, Gen. Mgr.; E. D. Landis.
- Empire Automobile Co.**—Congress—K. J. Horwitz, Treas. & Gen. Mgr.; F. A. Babcock, Sales Mgr.; H. W. Fenton, Adv. Mgr.; L. V. Cram, Chief Engr.
- Franklin Motor Car Co.**—Congress Annex—*S. E. Ackerman, S. B. Dodge, H. H. Franklin, J. E. Walker.
- Hal Motor Car Co.**—Congress—Frank B. Willis, Pres.; J. C. Weed, Adv. Mgr.; Darwin Hanauer, Chief Eng.; Fred H. Junk.
- Harroun Motors Corp.**—Congress—J. J. Plath, Sales Mgr.; R. Ward Macey, S. W. Monroe, W. W. Leathers.
- Haynes Automobile Co.**—Blackstone—S. M. Howe, H. R. Perry, H. K. Keelling, Frank Nutt.
- Hudson Motor Car Co.**—Congress—E. O. Patterson, O. H. McCormack, W. J. Drumplemann, G. G. Behn, C. W. Forbes, H. M. Hastings, G. W. Cushing, W. S. Ramsay, E. H. Carpenter, C. C. Wittingham.
- Hupp Motor Car Co.**—Congress & Annex—*Lee Anderson, *O. C. Hutchinson, *H. E. Westerdale, *A. B. Drury, F. Dickinson, C. E. Salisbury, C. H. Wallerick, J. R. Overstreet, J. R. Headley, Jr.; H. R. Roberts.
- Inter-State Motor Co.**—Henry Knippenberg.
- Jordan Motor Car Co.**—University Club—Paul Zens, Sec. & Treas.; W. B. Riley, Sales Mgr.; Edward S. Jordan, Gen. Mgr.; Russel S. Begg, Chief Eng.; T. J. Kegg.
- King Motor Car Co.**—La Salle—Artimas Ward, Jr., Pres.; W. C. Hood, Sales Mgr.; T. P. Chase, Chief Engr.; E. A. Scheu, George Gurney, J. E. Peterson, A. G. Dale, J. B. Siegfried.
- Kissel Motor Car Co.**—Congress—G. A. Kissel, W. L. Kissel, Charles E. Giltner, G. C. Frey, Charles McCausland, S. P. Valerius, A. W. Marquardt, John Lynch.
- Lewis Spring & Axle Co.**—Congress—F. H. Lewis, Pres.; Mansell Hackett.
- Liberty Motor Car Co.**—Congress—Percy Owen, Pres.; J. E. Fields, Sales Mgr.; R. E. Cole, Chief Engr.
- McFarlan Motor Co.**—Sherman—A. H. McFarlan, Pres.; B. M. Barrows, V.-Pres.; Edward W. Cotton, Sec.; Edward McGonigal, Chief & Design Engr.
- Maxwell Motor Sales Corp.**—Congress—C. E. Stebbins, T. J. Toner, Gordon Muir.
- Mercer Automobile Co.**—W. A. Smith, Sec.
- Milburn Wagon Co.**—Congress—H. W. Suydam, Pres.; F. H. Dodge, Treas.; Otto Marx, V.-Pres.
- Mitchell Motors Co.**—Congress—D. C. Durand, Pres.; R. C. Rueschaw, V.-Pres.; S. G. Dodge, John Tainsh, Sales Mgr.; F. A. Kapp, Adv. Mgr.; R. N. Soules, R. W. Davis, J. C. Brandeman, H. T. Hays, John Boe, W. D. Hawley, J. M. Phipps, F. C. Haumerson.
- Moline Automobile Co.**—La Salle—C. H. Van Dervoort, Sales Mgr.; D. M. Beal, Adv. Mgr.
- Monroe Motor Co.**—Great Northern—L. D. Haas, Sales Mgr.; B. C. Bradford, P. C. Hill, William Small, G. J. Gilbert.
- Moore Motor Co.**—New Southern—George L. Moore, Treas.; A. C. Leonard, Chief Engr.; E. K. Gallagher, Sec.; D. M. Ryan, Louis Disbrow.
- Nash Motors Co.**—Congress—C. B. Voorhis, R. D. Bishop, J. A. Rose, H. Hart, E. J. Travers, A. E. Creiger.
- National Motor Car & Vehicle Corp.**—Auditorium—George M. Dickson, J. M. Clarke, C. Baker, A. E. Vinton, H. H. Schmidt, W. B. Hamblay.
- Nordyke & Marmon Co.**—Congress—H. H. Rice, Walter Bielling, Harry Fosdick, W. A. Beal, F. E. Moskovics, H. H. Brooks, H. Hyde.
- Olds Motor Works**—Blackstone—Edward Ver Linden, Pres.; Fabio Sergardi, Chief Engr.; P. L. Emerson, Sales Mgr.; A. L. A. Spetler.
- Olympian Motors Co.**—Sherman—Fred K. Parke, President; St. Clair Couzens, Sales & Adv. Mgr.; L. P. Helm, Chief Engr.; C. H. Hurst, F. W. Thomas, Asst. Engr.
- Owen-Baker R & L Co.**—Blackstone—R. M. Owen, V.-Pres.; H. H. Doering and M. A. Watterson, Sales Mgr.; A. C. Faeh.
- Paige-Detroit Motor Car Co.**—La Salle—*H. Krohn, *W. H. Dickinson, H. M. Jewett, F. L. Jewett, A. L. Tisch, Charles S. Pike.
- Paterson Co., W. A.**—W. R. Hubbard, Sales Mgr.; C. H. Thrush, Frank Laster, Donald Laster.
- Peerless Motor Car Co.**—Congress—R. J. Schmunk, Sales Mgr.; W. R. Strickland, Chief Engr.; S. W. Slack, Asst. Engr.; Ben. Rennerd, W. H. Fraser, W. W. Lewis.
- Pierce-Arrow Motor Car Co.**—Blackstone—Carol Wilcox, W. S. Shortal, William O'Day, Laurence Clark, A. E. Killinger.
- Premier Motor Corp.**—Blackstone—*P. D. Stubbs, *E. W. Hurd, J. C. Flowers, E. W. Steinhart, C. S. Crawford, F. P. Nehrbaas, P. A. Berry, L. J. Goldman, J. B. Bragassa, R. J. Wynne.
- Reo Motor Car Co.**—Congress—R. H. Scott, F. H. Akers, C. E. Eldridge, H. C. Teel, C. W. Arthur, H. Harris, J. C. Miller, F. L. Walte, W. C. Parker, H. J. Stabler, E. L. Sloan.
- Roamer Motor Car Co.**—Congress—A. C. Barley, Pres.; M. L. Kellogg, Sales & Adv. Mgr.; R. V. Allen, Robert Lanzing, E. H. Beacham.
- Saxon Motor Car Corp.**—Blackstone—C. L. Fox, H. S. Benjamin, George O. Baldwin, C. S. McNaulty, B. O. Willibrands, F. B. Packwood, K. W. Macrae.
- Scripps-Booth Corp.**—La Salle—A. H. Sarver, Pres.; L. J. Stevenson, R. F. Merritt.
- Standard Steel Car Co.**—La Salle—*F. C. Van Derhoof, *H. A. Houser, *S. G. Duffy, O. E. Barthel, R. Lasher.
- Stanley Motor Carriage Co.**—Blackstone—Prescott Warren, Pres.; Frank Jay, V.-Pres.; J. H. Wright, Ed M. Hallett, Treas.
- Stearns Co., F. B.**—P. M. Booker, G. W. Booker, J. G. Sterling.
- Studebaker Corp. of America**—A. R. Erskine, L. J. Ollier, R. T. Hodgkins.
- Stutz Motor Car Co.**—Morrison—H. C. Stutz, Pres.; W. N. Thompson, Treas.; T. L. Marshall, Sales & Adv. Mgr.; Charles E. Stutz.
- Templar Motors Corp.**—La Salle—H. W. Anderson, Sales Mgr.; C. E. Bailey, Asst. Sales Mgr.; A. M. Dean, Chief Engr.; C. H. Landsittel, Pur. Agt.; C. E. McCullough.
- Westcott Motor Car Co.**—Blackstone—H. G. Root, Sec.-Treas. & Gen. Mgr.; E. H. Gilcrest, Sales Mgr.; P. W. Runyon, Adv. Mgr.; H. H. Brehm, J. L. Grissner, E. L. Harrison.
- Willis-Overland Co.**—La Salle—K. R. Jacoby, W. W. Canaday, H. G. L. Campbell, A. D. Barber, D. H. Cox, C. M. LeRoux, W. G. Northrup, R. J. Snowback, O. W. Lindgren, J. W. Peters, R. L. Butler, O. R. Hardwell, J. R. Handley, T. C. Woodin.
- Winton Co.**—La Salle—O. F. Baughman, C. W. Mears; Congress—C. W. Churchill.

Wright Heads Winnipeg Dealers

WINNIPEG, Jan. 14—At the annual meeting of the Winnipeg Motor Trades Association the following officers were elected: President, D. J. Wright, Western Canada Motor Co.; vice-president, R. McKenzie, McLaughlin Carriage Co.; secretary-treasurer, A. C. Emmett. Car Dealers and Garage Section, Representatives: A. R. Leonard, Cadillac Motor Sales Co.; T. G. Breen, Breen Motor Co.; Alfred Maw & Co. Tires and Accessories Section Representatives: Michael Ert, Michael Ert, Ltd.; C. F. Young, Auto Tire & Vulcanizing Co.; R. McKinnon, Dunlop Tire and Rubber Co.

Considerable agitation has taken place in regard to gasoline supplies and the

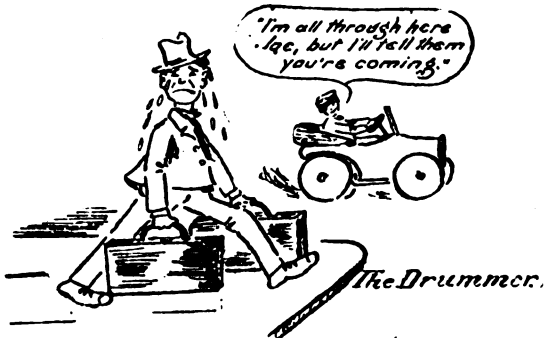
association has undertaken a campaign to educate the public and Government officials to the fact that there is no present shortage of supplies as far as Canada is concerned. Action is being taken by all the western motor leagues, the trade association and the eastern clubs to bring the matter before the Government by means of a large deputation and to obtain some authoritative statement that the Government will not curtail the use of cars in any way until absolute necessity compels such a step. Such action is necessary as owing to want of knowledge as to the Government position trade is being hampered. The association has secured new offices in the Scott Block at the headquarters of the Winnipeg Automobile Club.

Separates Service From Sales

ST. LOUIS, Jan. 14—H. G. Hurd, Buick retail distributor, has made a notable change in the method of handling service. He has incorporated the Standard Auto Service Co., which will be the service department for Buick cars. This company will be located at the present Buick service headquarters, 3952 Olive Street. The retail sales are made from the Vesper-Buick Auto Co., wholesale salesrooms, at Grand Avenue and Lindell Boulevard. Hurd says that his reason for the innovation is that he does not want persons in a bit of a temper invading the retail salesrooms. All purchasers will be informed as to where service is to be obtained.

Read
All
of
This
Page

CAN WE AFFORD TO DO WITHOUT CARS?



"15 More calls to make and the last train leaves for my next town in an hour."

Thousands of salesmen and garage agents



30,000 Automobile Dealers



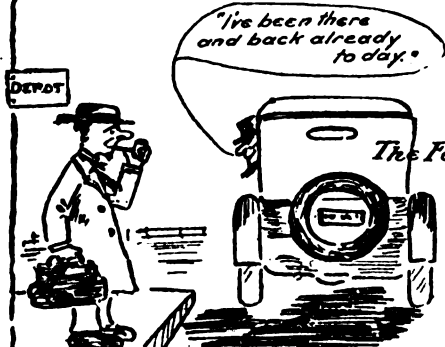
"Only 2 miles more and if he's still living I'll cure him if I don't collapse myself."

The Government asks if the Automobile is essential.

The **SAXON** Distributors for the San Joaquin Valley answer like this.



"I ordered that meat this forenoon and it's not here yet."

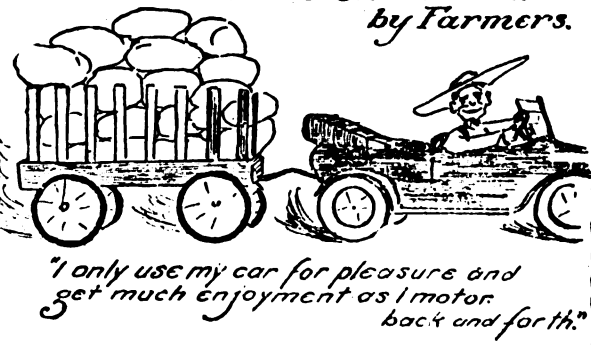


"Just at my busy season I have to go to town and stay 2 days just for a little shopping."

The Automobile Ranks 3rd in the industries of the United States.

80% of the autos in the U.S. are owned by Farmers.

This is not a morning after - Just a commuter who runs for a street car to keep an important date at the office



THE SAXON DEALER in Stockton, Cal., has been doing his bit toward showing the public why the car is a necessity and not a luxury. The cartoon on this page was run in the Stockton paper, having first appeared in the dealer's house organ. Give these pictures the "once over," add a few of your own ideas and don't ever let anybody make you back water again on this "luxury" foolishness

Dealers Can Use the Trade Acceptance

New York Jobbers adopt standard form and send out letter to dealers and garagemen, offering to assist trade to put new plan into effect

NEW YORK, Jan. 10—The dealer and garageman can use the trade acceptance on the customers who buy from him at retail. This idea is to be spread broadcast in the jobbing district surrounding New York city by the Eastern jobbers.

Some time ago the New York jobbers held a meeting and discussed the using of the trade acceptance. It is already being used upon jobbers by quite a number of manufacturers, and in an effort to make business conditions better it was suggested that the jobbers use the acceptance in sending goods to dealers and garagemen.

At a meeting this week at the Hotel McAlpin the jobbers agreed upon the standard form of trade acceptance that is being issued by the National Association of Credit Men. A large number of these are to be ordered and used.

With it will be sent out to the trade a letter which is printed elsewhere on this page. It will be noted that the last paragraph of this letter states that the jobbers are willing to extend to the dealers any assistance in putting this plan into operation with retail customers.

This means that the dealer can go to his jobber, secure all the available information about the trade acceptance form, how it is used, the benefits that come from it, and then purchase a quantity of these for use with his own retail trade.

By the use of the trade acceptance the man who sells goods is enabled to get the cash value of the bill at once and the buyer of the goods does not have to pay for them until a credit period has passed.

At this week's meeting the discussion came up as to whether labor that is performed in a garage could be classed as merchandise, and included in an acceptance to a retail customer. Secretary Wilmot, of the National Association of Credit Men, said that the Federal Reserve Board had ruled that labor can be classed as merchandise.

In the case of garage storage on a monthly basis where the rate is, let us say, \$30 for live storage and \$5 or \$10 for dead storage, it is obvious that about 60 per cent of the storage charge is for service, and Wilmot said that in case

the bulk of the charge was for labor and service there would be no objection whatever to using the trade acceptance for the entire monthly storage bill.

This means that the proprietor of a garage or repairshop may present to his customer for signature a trade acceptance. When this had been signed the garageman could cash it and the amount would then be collected from the customer at his bank at the end of 30 days or whatever other period was specified

in the acceptance. In putting the trade acceptance into effect it is suggested by the jobbers here that they order sample forms and mail them out to the trade about the middle of this month so that dealers and garagemen will be familiar with the plan by the time Feb. 1 statements are issued. The sample forms will consist of the trade acceptance part and the explanation part, sections 1 and 2 of the acceptance shown on the opposite page.

Letter New York Jobbers Are to Send Out

Owing to the abnormal conditions brought about by the war, increased cost of materials and general restriction of credits by banks and manufacturers, it has become necessary for us to adopt a slightly different policy for the settlement of our accounts, which policy has been approved by the Federal Reserve Board as being the most effective method of meeting these changed conditions and has been adopted by many leading business houses throughout the country. By your co-operation in this respect you will find that you will be able to do business along the same lines as heretofore without serious credit restriction and we are sure that the plan as submitted below will meet with your approval and our former pleasant business relations will continue as heretofore.

The plan is as follows:

On the first of each month we will send you a statement of your account as formerly, to which will be attached a Trade Acceptance like the inclosed sample. You will have the privilege of deducting the customary cash discount in making payment of this statement on the 10th prox. as heretofore, but in case you find it inconvenient to make payment in this manner we request that you fill out and sign the Trade Acceptance attached hereto for the net amount of your statement less any deductions to which you may be entitled that are not shown on our statement, and return to us. The acceptance should be made payable at your Bank on or before the _____ of the succeeding month after date of statement. You will note that the Trade Acceptance herewith attached is filled out in the correct manner and may be used as a sample for your future use.

The Trade Acceptance is not a sight draft or a note and is not looked upon as such by your bank. A Trade Acceptance is given in payment of a current account for mer-

chandise sold and is due in accordance with the terms of sale as specified between buyer and seller. A Note is given in payment of a Past Due account, and a sight draft is drawn on a customer whose account we do not consider desirable accept on a cash basis.

You will, of course, readily see that we are not changing our terms to you in any respect except as to the method of handling. We are simply asking you to put in negotiable form the obligation you assume in purchasing goods on other than cash terms. There is no added cost or shortening of terms in doing this. In fact, it will mean a distinct advantage to you as it enables you to strengthen your credit position with your Bank and the trade in general and to put into operation the same plan for handling the accounts of your customers, and by discounting your customers' acceptances with your Bank it places the burden of financing your business on your Bank where it rightfully belongs.

It is a matter of sound patriotism to place business on the trade acceptance basis. In assuming the burdens of the war, we must make our assets as liquid as possible, must introduce all that works for economy and efficiency, so that business be disturbed as little as possible.

Leading authorities have stated that for this country to assume its rightful place in world commerce after the end of the war, it will be necessary for us to get on the same basis of economical production and distribution as is practiced in other countries. And the trade acceptance offers a means to this end.

We shall be glad to answer any questions and to furnish any information you may require to aid you in putting this plan into operation with your customers.

We thank you for your co-operation in this respect.

Section 1

This is filled out by the buyer of the goods and returned to the seller. The buyer writes the date, his bank, his town and his name on the blank spaces across the face of the acceptance. At the maturity date the buyer takes up the acceptance at his bank.

CHAMBER OF COMMERCE OF THE U. S. A.
TRADE ACCEPTANCES
NATIONAL ASSOCIATION OF CREDIT MEN
APPROVED BY
AMERICAN BANKERS ASSOCIATION
REGISTERED IN THE AMERICAN TRADE ACCEPTANCE COUNCIL

TRADE ACCEPTANCE

To _____ 191 _____ \$ _____

after date pay to the order of OURSELVES

Dollars.

The obligation of the Acceptor hereof arises out of the purchase of goods from the drawer.

To _____

Due* _____ 191 _____

By _____

ACCEPTED
PAYABLE AT
LOCATION
SIGNATURE OF ACCEPTOR

DETACH BEFORE RETURNING ACCEPTANCE

Section 2

This section explains what the acceptance is. This section is retained by the buyer because on the back of this part is Section 4, which is explained further down on this page.

A TRADE ACCEPTANCE

Is an acknowledgment of a debt by the buyer in favor of the seller, for merchandise that the seller had placed in the hands of the buyer. The buyer agrees, in writing across the face of this acceptance his name, the name and location of his own bank and the date, to pay the amount of this certain indebtedness at a certain time at his own bank.

This varies from the open book account method only in giving the debt a negotiable value.

According to a FEDERAL RESERVE BANK GOVERNOR'S OPINION, the signing of an Acceptance increases the financial standing of the giver, because it shows prompt paying methods.

Kindly sign attached Acceptance, then forward to us.

SEE REVERSE SIDE

SELLER RETAINS THIS PORTION

Section 3

This section is not seen by the buyer. It is filled out by the seller and retained in his office as a record of what acceptances have been mailed out and returned and discounted. The face value, discount, etc., are recorded here for the issuer's information.

NAME	ADDRESS	PAYABLE AT	CITY	DATE	DUE DATE	AMOUNT \$	COVERING INVOICES	DISCOUNTED AT	NET PROCEEDS	REMARKS
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Section 4

This section is on the back of Section 2. It tells the buyer of the goods what acceptances he has signed and when they are due. By keeping a check on these he is always able to be ready for payments. This section is to the buyer what Section 3 is to the seller.

The acceptance is on Phelps Protective Paper in order to effect a good appearance and make the acceptance look like something other than the cheap form of promissory notes that are so common. The acceptance is NOT a note.

PURCHASER'S RECORD

AMOUNT \$	ACCEPTANCE DATE	DUE DATE	AT	TO	COVERING INVOICES	REMARKS
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A Department of
BETTER MECHANICS

No. 52

Maintenance and Adjustment
of the
Torbensen Axle

By S. T. Williams

TRUCKS are constantly becoming more important in the repair shop, and because of the heavier service require even more careful attention than do passenger car axles. The following are the points that should be observed in work on the Torbensen axle:

LUBRICATION

On shipment from the factory all axles are provided with sufficient lubrication to prevent rust and permit inspection. On receipt, therefore, all axles must be inspected for dirt, etc., and the parts charged with lubricant. The amount of oil for various seasons is as follows:

Type	Summer. Amount	Winter. Amount
O & A.....	1 quart	1 1/4 quarts
C.....	1 1/2 quarts	2 quarts
E.....	2 quarts	2 1/2 quarts

After the first thousand miles the internal gear cases and the housing should be drained, washed with kerosene, and a new supply of lubricant provided. This treatment should be made after each 5000 miles of use, and is necessary to

remove any particles of dirt or scale which may work into the case or become detached from the housing. It is essential that the amount specified be used, as any in excess of that will be wasted.

At this time all ball or roller bearings should be washed and given a coat of vaseline. Cheap oils or greases may contain acids which will rust the cages, rollers or balls. On the internal gears a thin coat of non-fluid oil, grease, or a graphite mixture may be used. This, too, should be put on quite thin, as any excess amount is wasted, and the lubrication should be done monthly. Each hub has a core permitting a large quantity of soft grease or non-fluid oil to be carried, which works down into the bearings.

ADJUSTMENTS

All adjustments are provided with locks and should not be disturbed unless necessary. The adjustments are made for two purposes—

1—To provide the proper center distance for the gears.

2—To take up wear.

The former is indicated by noisy operation of the axle and the latter by backlash or noise.

DIFFERENTIAL ADJUSTMENT

(See Fig. 1)

At either side of the differential are adjusters which hold the differential and crankshaft bearings in the proper relation and permit correct meshing of the bevel pinion and ring gears. Between these gears there should be only a slightly perceptible amount of backlash, and the engagement should correspond with the center line of the gear. To adjust the differential:

1—Turn the right-hand adjustment to the right and the left-hand adjustment to the left and bring the gears into closer mesh. Do not tighten the adjustments to a point where they cramp the bearings, and stop when the amount of backlash is barely perceptible.

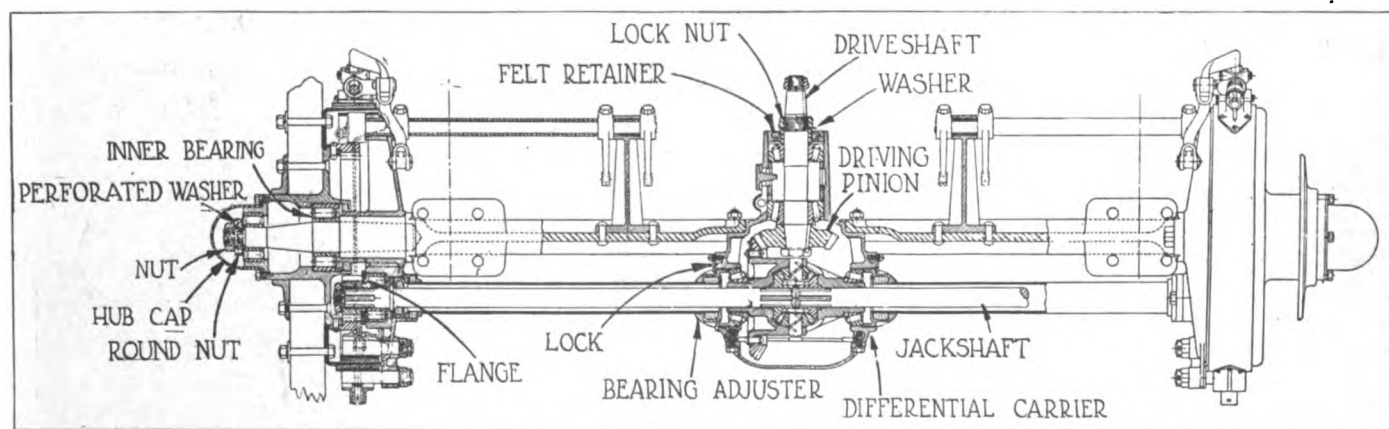


Fig. 1—How to adjust the differential in the Torbensen internal-gear axle

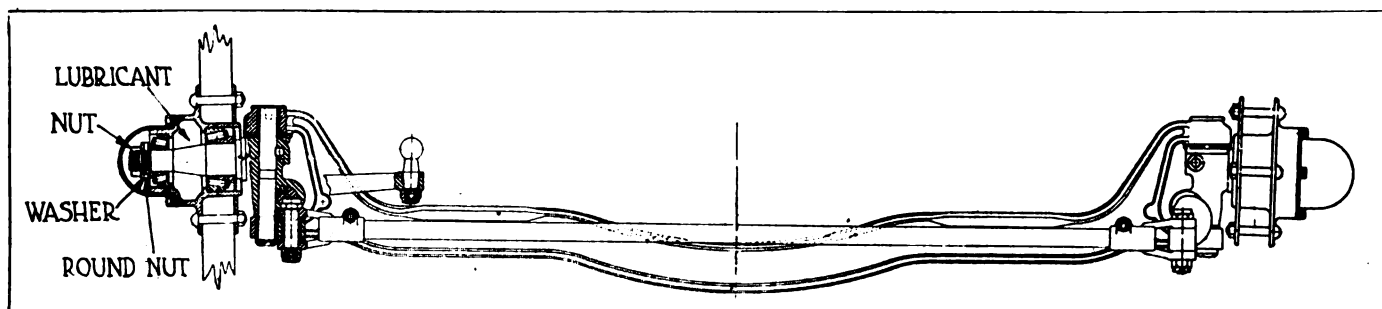


Fig. 2—Arrangement of parts in the Torbensen axle and the location of various adjustments

BEARING AND HUB ADJUSTMENT

In order to lubricate the bearings or examine the brakes it is necessary to remove the wheels. This necessitates bearing replacement and adjustment, which should be done as follows:

1—Remove the hub cap and the other parts of the hub so that the parts may be lubricated. Then after lubrication assemble the parts in the order torn down.

2—Screw up the round nut in Fig. 1 until it is moderately tight, then unscrew it half a turn.

3—Slip on the perforated washer and see that the projecting pin in the round nut fits into one of the corresponding holes in the perforated washer. Screw up the castellated nut until it is tight and secure it with a cotter pin.

All of these instructions apply either to the straight roller or the taper roller types of wheel bearings.

TEARING THE AXLE DOWN

(See Fig. 1)

The following is the method of disassembling the axle:

1—Remove the hub caps.

2—Remove the cotter pin and unscrew the castellated nut.

3—Remove the perforated washer and unscrew the round nuts on the axle.

4—Pull the wheel straight off the hub spindle. If this does not come off easily a special puller fitting over the hub may be used.

5—Remove the inner bearing. Care must be used when doing this, and a chisel or pry should not be applied to the outer race of the bearing. The removing strain should be applied evenly to two sides of the bearing so that it is forced off without pinching.

6—Inspect the internal gear. This should show little evidence of wear and should be tight on the jackshaft.

7—Remove the flange holding the jackshaft in place. It is held by two bolts.

8—Pull the jackshaft out.

9—Remove the rear half of the differential carrier which is held in place by six studs and nuts. The driving pinion and shaft may be now inspected and the condition of the gears and bearings determined. It may be removed by unscrewing the locknut at the end of the driving shaft and taking the shaft out through the rear of the carrier. All other parts of the axle need no further inspection requiring special instructions.

THE ASSEMBLY

The main point in assembly is to obtain the correct adjustment of the bearing and differential gears, the work, of course, being the reverse of the taking down.

DRIVE SHAFT BEARING ADJUSTMENT

1—After assembly of the parts, the locknut on the end of the driving shaft should be tightened moderately tight.

2—Then turn this nut back one-quarter to one-half turn. In this position there should be a barely perceptible slack or end play in the bearings.

3—Draw the outer locknut up tightly and lock both nuts in place by bending over the prongs of the washer.

ADJUSTMENT OF THE DIFFERENTIAL BEARINGS

The taper roller bearings at each side of the differential must be likewise adjusted with a small amount of play in the manner previously described. After adjustment they should be locked in place and before going into service all locking devices should be checked up, otherwise serious damage may occur.

FRONT AXLE

Each of the grease cups on the front axles should be filled with soft grease or non-fluid oil and turned down a half turn each day that the truck is in service. The wheel bearings receive their lubricant from a supply in the hub and this should be renewed monthly.

ADJUSTMENTS

(See Fig. 2)

The following is the way to adjust the front wheel bearings, the method apply-

ing to either straight roller or taper roller types of wheel bearings:

1—Screw the inner round nut up until it is moderately tight.

2—Unscrew it one half turn. The wheels should then turn freely with a scarcely perceptible amount of backlash.

3—Slip on the perforated washer and see that the pin fits into one of the corresponding holes in the round nut.

4—Tighten the locknut and secure it with a cotter pin.

ALIGNING THE WHEELS

As is well known, any misalignment of the front wheels will destroy the tires in a short time. This alignment may be tested quickly.

1—Jack both front wheels free from the ground.

2—Spin the wheels and hold a piece of chalk against the center of each wheel tread, drawing a line around its center.

3—Measure the distance between the lines at the front and the distance at the rear at the height of the hub caps.

4—The first distance should be from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. less than the distance measured at the rear.

If a steering knuckle or steering arm has been bent the best practice is to replace it with a new one. It is not always possible to bend these back to the correct shape cold, and if heated the original heat treatment will be destroyed and the parts will be too soft for safety. Bent cross rods should always be removed and straightened before attempting to align the wheels, and this may readily be done.

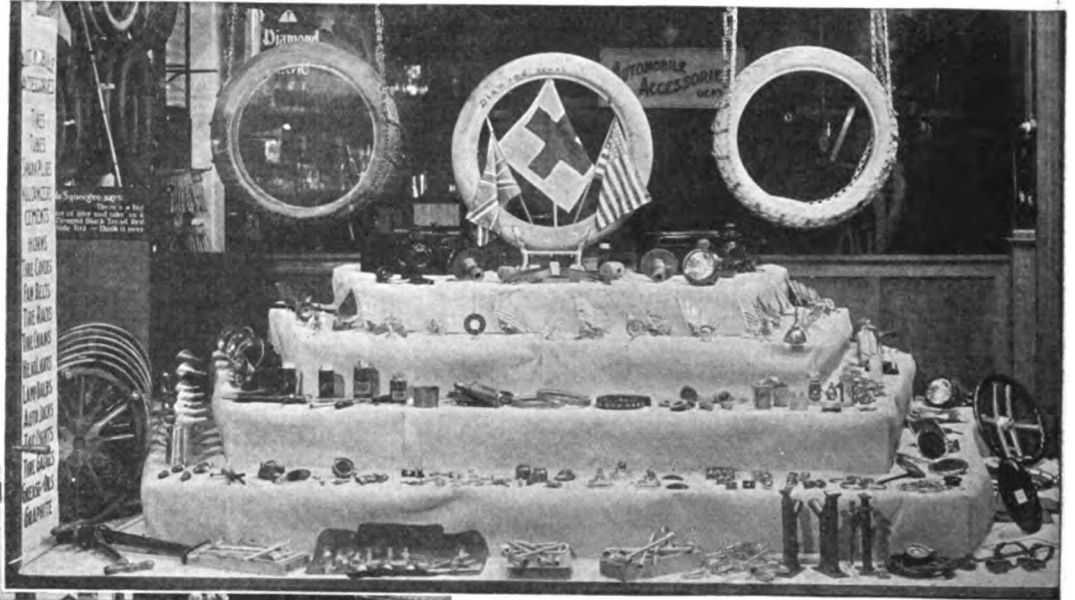
What Is the Best Job You Have Ever Done?

Send a description of it to Motor World. Explain very carefully every step of the work. A few rough sketches should accompany the description. If your contribution is valuable to Motor World readers we will send you a check at once.—EDITOR.

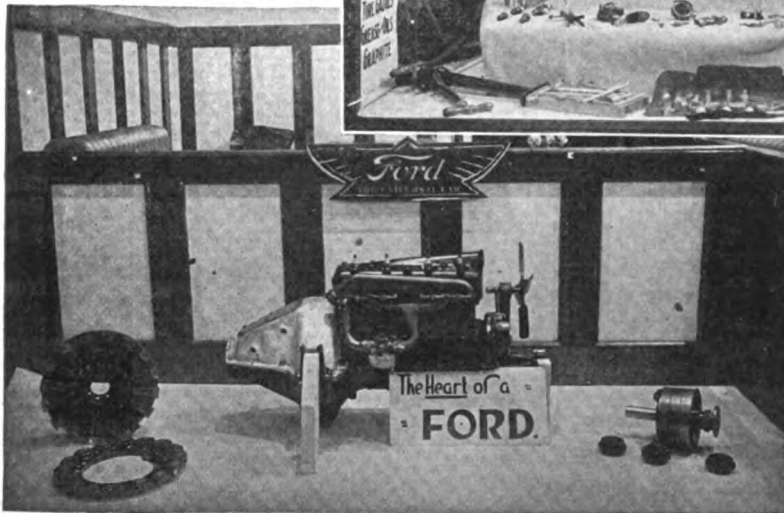
Jack Buckley Gets the \$10 Prize

SOME time ago MOTOR WORLD offered \$10 for the best window that would be trimmed using Ford materials. The window was to be made to fit the window of the Porter Garage, Porter, Minn., of which Lindquist Bros. are the proprietors. They stated that they had tried all sorts of windows and had run out of ideas.

The stipulation was that the window must be made of Ford materials only and must be photographed at night with the lights on. Out of



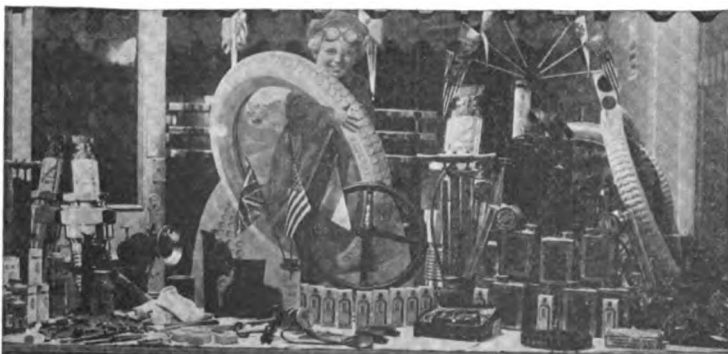
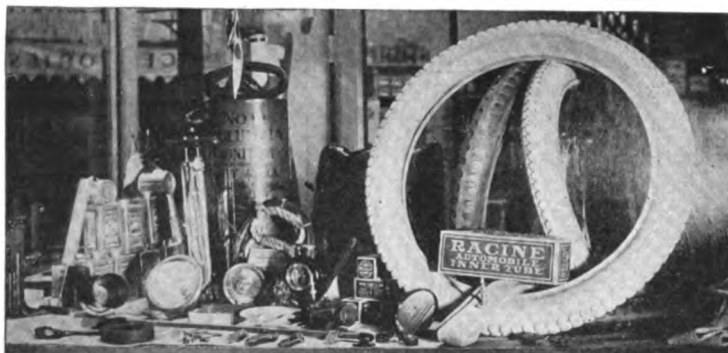
Window by Jack Buckley of Beard Campbell Co., Port Huron, Mich.



Window by Lee C. Sprague, Sprague's Garage, Fowlerville, Mich.

Right—

Two windows by Lloyd Willster, M. & M. Auto Supply Co., Marinette, Wis.



For criticisms of these windows read the story on this page

the photographs received these four have been chosen as the best and that of the Beard Campbell Co., Port Huron, Mich., as the winner. It was trimmed by Jack Buckley.

Buckley's window—shown at the top of the page—is well balanced, is not crowded, and is made of parts not easily displayed. The secret of it is the terraced stand in the center, covered with white paper, something easily made. A sign or two could have been used with good results.

The Sprague window—at the left—is good, and the sign is particularly well done. The window is not crowded and is neat. For one of a series of windows it has merit.

The M. & M. Auto Supply Co.'s window—the upper of the two bottom windows—is poorly done. It is jumbled. Contrast it with the window at the top of the page.

The lower M. & M. window is equally bad. There is too much in it and there is no unity. The sketches of window trimming principles in the Winter Business Number, Oct. 10, show what should have been done here in the placement of mass and detail.

Will You Have to Pay an Income Tax on Your Show?

Meeting of Show Managers in New York Discloses That Former Arrangement for Handling Sale of Space May Mean a Large Income Tax on the Proceeds of the Show

NEW YORK, Jan. 10—At a meeting this afternoon of the National Association of Automobile Show Managers at the Hotel Woodstock it developed that the customary arrangement for the sale of space at dealers' automobile shows may mean that the various associations will have to pay large sums of money to the Government.

Under the old arrangement space has been sold at a figure which more than covers the cost of the show, the money paid for this space being in reality a guarantee for show expenses.

After the show a good portion, if not all, of this money has been refunded to those who paid for the space.

Under the excess profit tax law a good share of this rebate would be classed as excess profit and a large percentage of it would have to be paid to the Government.

To Try a New Plan

The situation arose recently in Cleveland and after an investigation Show Manager Fred H. Caley worked out an arrangement that it is believed will prove more equitable to the dealers in the association.

Under the revised plan all of the money that has been paid in will be turned over to Caley as trustee. It will be money advanced to meet the expenses of the show. As none is needed for rent for the show building, decorations and other expenses, the trustee will advance it to the show company and after all the expenses have been paid the money that is not used will be given back to the dealers.

Would Cost \$15,000

Under the plan that had been followed for many years the association would have had to pay to the Government some \$15,000 or \$16,000, which in reality is not income at all, but is merely a sum of money advanced for the expenses of the exhibition.

Manager Clarke G. Powell, Omaha, said his association had long ago discontinued this practice of dealers paying money in and then having it paid back to them again, because it was not a good arrangement. He said the dealers were assessed the sums sufficient to cover the expenses of the show, the assessment being prorated on a square foot basis and what small profit there was, was not so large that it would be at

all affected by the income tax. A similar arrangement is followed in Philadelphia.

The fact that large rebates from shows would come under the Government act was not known to some of the managers and they stated that they would at once revise their plans and after the show had been held submit the arrangement to the local internal revenue collector to see if it would merit his approval.

Should Dealers Give Away Tickets?

Considerable time was devoted to the discussion of the advisability of having the trade tickets for sale at cut rates to dealers for distribution to their prospects. The meeting was about equally divided on the subject and no definite conclusion was reached.

So far as the tax on admission passes is concerned some are going to charge a fee every time the user of the pass makes his first daily visit to the show. Other associations are going to charge the first time the pass is presented and an amount sufficient to cover the use of the pass for the number of days the show is open, regardless of whether the user of the pass intends to come every day or not. In some cases the tax is to be absorbed by the show itself.

What Canada Has Done

Manager T. C. Kirby of Montreal won applause when he told of the position to which the automobile men of Canada have continued to hold their show and fight for the continuation of business despite adverse conditions and the war. Kirby is going to run an essay test on the essential character of the industry to be participated in by school children under 15 years of age.

Caley of Cleveland is conducting in a Cleveland newspaper a cartoon guessing contest hooked up to the automobile business. The prizes are \$25, \$20, \$15, \$10 and \$5 and to the next fifty winners are given two tickets to the show. All this is for the object of giving to the automobile business the favorable attention of the public.

Considerable attention is to be paid by the managers this year to undesirable magazine and trade paper soliciting. In case a solicitor is found operating on undesirable lines he is to be expelled from the show and all other managers of shows are to be notified of this action.

How Newark Dealers Are Putting Themselves Across

Have the people in your town a wrong opinion about the motor car business?

Do they believe the car is a non-essential?

Do they believe dealers should shut up shop and go out of business for the duration of the war?

Have their minds been influenced by the adverse publicity that was published when the question of curtailment first appeared in the newspapers? If so, you should read this story.

NOT many weeks ago there came from our national capital, in the columns of the daily newspapers, a great many stories to the effect that the motor car was a non-essential, that the motor car industry was going to be taken over by the government, that the production of cars was going to be curtailed, and that all sorts of things were going to happen to the third largest manufacturing industry in America.

All these rumors set alarm throughout the trade. They gave the public a wrong impression. They set the public mind working toward a wrong economic condition.

They caused people to believe that if we were going to win the war we must drop everything else except the manufacture of guns and ammunition and the equipping of soldiers and let all our peace-time activities die.

The Newark dealers realized that this was wrong.

They realized that if we are to win the war we must, in addition to taking care of our war business, give great attention to our peace business. They realized that if the country is to be strong and able to support a big war, it must maintain its civic life and its business activities to a higher degree, if possible.

They also realized that the motor car is one of the world's greatest essentials at this time when transportation is one of the great needs of the hour. Their problem was how to combat this situation.

After consultation they decided that the influencing of public opinion could be done as it had been done by the numerous newspaper stories. They determined that they would rely upon advertising. They combined once a week in a collective advertisement in which they began week by week to tell their side of the story of the automobile industry.

Their efforts are meeting with success.

Not only do people now realize that the motor car industry must not be cut down but they also realize that other business and activities must be continued if the war is to be prosecuted to a successful conclusion.

In none of these ads is any mention made of the businesses of the dealers. The ads are not for the purpose of selling cars. The primary object is to show the public what the motor car business amounts to and that the trade be permitted and encouraged to thrive and flourish.

Elsewhere in connection with this story is shown the contract into which the dealers entered with the newspaper. It states that no make or model of car is to be advertised, and that each dealer is to pay his pro rata share of each ad. This brings the cost of each advertisement per dealer down to a very small sum and it also permits each dealer to have the advantage of what in advertising papers is known as a rate holder.

One of the most successful ads has been that in which Howard Coffin, who is well known to this industry, set forth his now accepted principle that industry must be expanded and greater activity must be our slogan if we are to win the war.

This particular advertisement attracted a great deal of attention. It was commented upon by business men. The entire business community of Newark realized that what Coffin said applies to all business as much as it did to the automobile business.

Sunday, Dec. 30, the advertisement consisted of a set of New Year's resolutions, wherein the efficient man was made to say that he proposed to make himself more efficient during the coming year, that he would accomplish more physically and mentally, and would do everything to make himself a better worker. In this was the suggestion that the motor car is an aid toward making him this more efficient man.

In addition to these advertisements, the Newark Morning Ledger, in which all the ads have appeared, has taken up the work of assisting the dealers in formulating correct public opinion.

Much of the credit for the work should be given to J. Bernard Keeney, motor car editor of the Newark Morning Ledger. The original suggestion was Keeney's and he has co-operated through-

out with the dealers in this campaign. The advertisements have attracted attention in a great many cities. Three of the advertisements appear on pages 31, 32 and 33. Read them.

A campaign of this kind is inexpensive when supported by the entire trade of the city and the results should prove to be valuable to any group of dealers that takes it up and carries it through in a systematic way.

Contract of Newark Dealers with Newspaper

We, the undersigned, hereby agree to unite in the co-operative advertising plan of the Newark Sunday Ledger as per the following arrangement:

There will be inserted in each Sunday's issue of the Newark Ledger for a period of fifty-two (52) weeks, a series of announcements written for the purpose of promoting and generally improving the conditions relative to increasing the demand for automobiles in the Newark territory.

The size of such announcements to be regulated according to the number of firms entering into this agreement.

All advertisements will be prepared through co-operation with the dealers and following suggestions submitted by them.

No one make or model of car will be advertised. No announcement will contain advertising for any particular car further than the mention of the dealer's name and the line carried by such dealer in space allowed for such mention of dealer in each advertisement.

All copy (including drawings, cuts and other data) to be prepared by the staff of the Newark Ledger at no extra charge above the contract price stated in this agreement.

Each firm entering into this agreement will pay its proportionate share of the cost of such space as is required for each announcement, for a period of fifty-two (52) weeks from the date of first insertion of co-operative announcements.

IT IS FURTHER AGREED THAT BY ENTERING INTO THIS CO-OPERATIVE AGREEMENT, EACH FIRM WILL BE ALLOWED TO ENJOY THE MINIMUM RATE PER LINE ON ALL DISPLAY SPACE INSERTED IN THE NEWARK LEDGER (DAILY OR SUNDAY) FOR ANY AMOUNT DESIRED DURING THE PERIOD COVERED BY THE CO-OPERATIVE ANNOUNCEMENTS.

Payments to be made monthly, each concern to be billed separately for its individual share at the contract price.

This Ad Won Big Attention in the State of New Jersey

Read the Story on Page 6

PAGE TWENTY-TWO

NEWARK MORNING LEDGER, SUNDAY, DECEMBER 23, 1917.

"Expansion in Every Line of Industrial Activity Must Be Our Slogan"—Howard E. Coffin



HOWARD E. COFFIN

Chairman the Aircraft Board, member Naval Consulting Board, member Advisory Commission Council of National Defense, President American Society of Automobile Engineers, member American Society of Mechanical Engineers, member Detroit Engineering Society, member National Automobile Chamber of Commerce, Vice President Hudson Motor Car Company.

The following impressive expression by Mr. Howard E. Coffin, chairman of the Aircraft Board, is a brief summary of conditions in America's industrial welfare as realized by men of sound judgment who "man the ship of state."

"We are hearing a great deal now about restriction in almost every line of American endeavor. Coal is restricted; steel is restricted; industries are to be curtailed; a labor shortage is complained of. If this war is going on over a period of years, as it unquestionably is, there is no use trying to win it upon the basis of 'restriction.' Expansion in every line of industrial activity must be our slogan. It is only through keeping our industries going ahead that we can hope to keep this country going as a successful economic machine. It will be easy to float Liberty Loans as long as the country's industries are forging full steam ahead, but it will be hard to finance a church social if we are to begin curtailments in every line of industrial endeavor.

"We must finance not only America's war program, but, to a large extent, that of the Allies as well. Clearly, therefore, one of our greatest industrial tasks will consist of the manufacture of money.

"Our industrial resources are so great as compared with any or all the Allied countries, or with Germany, that the economic conditions existing abroad cannot be taken as a guide to us here. Our entire governmental war program consumes a comparatively small portion of the manufacturing and producing resources of this country.

"These facilities must, therefore, be kept going ahead upon commercial products for both export and home consumption, if we expect these industries to continue as a war asset in the production of governmental revenues.

"Let us plan to increase our coal production because we have the coal in the ground. Let us increase our steel production for no one even claims a shortage of ores. Let us increase our available labor supply through the systematic education or conscription of a few of our seventy or more millions of people not now employed in gainful industry."

Mr. Coffin adds that if there is any one lesson which has come down to this Nation through the past three years of European War, it is that—

"We Must Win This War By Industrial Expansion"

The progressive automobile dealers of Newark are of the same opinion as Mr. Coffin. Their slogan is: "Expansion in Every Line of Industrial Activity."

Not only are these dealers expanding the automobile industry of New Jersey, but it should be realized that every sale of a commercial car or passenger car in any part of the United States, has an influence for good upon some other industries as well.

The Motor Truck is indispensable at the front. It is also the unrivaled "first aid" in the relief of transportation difficulties on this side of the Atlantic.

The Truck is a matchless "expander" of America's industries, enlarging the field of service for every factory from the smallest to largest. The Delivery Car expands the field of the retail merchant. Motor delivery service materially develops the merchants' trade. Increased sales gained through such service have their effect upon varied industries whose expansion is vital in the Nation's financial welfare; or, in the words of Mr. Coffin, "the manufacture of money."

The Passenger Car is the busy business man's first aid to health. Health is priceless and the greatest of all

necessities in the development of business in these days of keen competition.

The Motor Car is a necessity on the farm. The farm development is quite as important as industrial expansion. The Passenger Car shortens the time between "pay day" on the farm and "spending day" in the city. It has been responsible for more immediate circulation of America's great farm wealth.

The Motor Car has not only expanded its own industry, but has aided in the expansion of everything American from farm to factory.

Every time a Newark dealer or motor car representative anywhere in the United States sells an automobile he increases the power of expansion in some branch of industrial life.

Every time a man purchases a motor car he steps into the ranks of those capable and progressive enough to keep pace with the true Americans who, like these

Newark Auto Dealers Believe in Industrial Expansion

Antac Sales and Service Co. "Antac Motor Truck" 418 Washington St. Mkt. 7900	Farr Motor Car Co., Inc. "Farr" 524 Broad St. Market 7271	Hudson Motor Car Co. of New York "Hudson" 544 Broad St. Market 2216	North Jersey Motor Vehicle Co. "National" 544 Broad St. Mkt. 3741	Sanderson Motor Car Co. "Sanderson" 406 Central Ave. Mkt. 3619
Herman Bartach "Herman" 80 Central Ave. Mkt. 9532	Federal Truck Co. of Newark "Federal Truck" 365 Halsey St. Market 1946	Hurlburt Motor Truck Co. "Hurlburt" 26 Bradford Place Mkt. 5011	North Newark Auto Co. Inc. "North Newark" Baltimore 11 Halsey Street Service Station 17 Broadfield Ave. B. B. 5400	Stanley Steam Car Sales Co. "Stanley Steam Car" 289 Central Ave. B. B. 5722
Bonnell Motor Car Co. "Bonnell" 520 Broad St. Mkt. 9721	Fulton Garage Inc. "Fulton" Front and Fulton Sts. Market 138	Isotta Fraschini Motor Co. "Isotta" 71 Central Ave. Mkt. 4229	Paddock-Less Motor Car Co. "Paddock" 804 Broad St. Mulberry 2271	Calvin Tomkins Electric Garage Co. "Tomkins" 287 Halsey St. Market 8426
Broad Auto Co. "Broad" 985 Broad St. Mkt. 3772	H. A. Garshella "Garshella" 282 Washington St. Market 1626	C. P. Kautzmann Co., Inc. "Kautzmann" 403 Clinton Ave. Waverly 4045	Paige-Detroit Co. of Newark "Paige-Detroit" 536 Broad St. Mkt. 3875	Veitch-Hall Motor Car Co. "Veitch-Hall" 254 Central Ave. Mkt. 468
Chevrolet Motors Co. "Chevrolet" 309 Central Ave. Branch Brook 3129	The Grease Motor Car Co. "Grease" 90 Washington St. Mulberry 1815	King Motors Inc. "King" 132 Halsey St. Market 2012	Wm. Parkinson Motor Sales Co. "Parkinson" 372 Central Ave. Mulberry 2208	W. I. B. Motor Truck Co. Inc. "W. I. B." 291 Halsey St. Mkt. 9684
Detroit-Cadillac Motor Car Co. "Cadillac" 536 Broad St. Mulberry 3219	Hardman Tire and Rubber Co. "Hardman" 30 William St. Mkt. 9050	King Sales Co. "King" 419 Central Ave. B. B. 5000	H. G. Pederson "Pederson" 228 Central Ave. Mkt. 9246	F. H. Walsh Auto Service Co. "Walsh" 313 Central Ave. B. B. 740
Doll-Slingerland Co. "Doll-Slingerland" 229 Halsey St. Mulberry 3392	Hoagland-Thayer, Inc. "Hoagland-Thayer" 300 Washington St. Mulberry 1500	Marmon Co. of New Jersey "Marmon" 90 Washington St. Mkt. 3619	Reo Motor Car Co. "Reo" 37 William St. Mulberry 2030	The White Co. "White" 33 William St. Mkt. 745
Essex Automobile Co. Inc. "Essex" Broad St. Market 5316	Floyd C. Huff Motors Co. "Huff" 244 Central Ave. Mkt. 1145	Manufacturers Tire and Rubber Co. Inc. "Manufacturers" 218 Halsey St. Mkt. 2226	Rice-McNee Motor Truck Co. "Rice-McNee" 226 Halsey St. Mkt. 3799	The Whiting Motor Co. "Whiting" 406 Central Ave. Mkt. 7676
W. C. D. Motor Car Co., "Chevrolet" 259-211 Central Ave. Market 1371		Wiener Tire Co., "Fire Tire and Tube" 214 Halsey St. Mkt. 4561		

The People Who Read This Ad Now Know Cars Are No Luxury

Read the Story on Page 6

XIX TWENTY-SIX

NEWARK MORNING LEDGER, SUNDAY, DECEMBER 2, 1917.

The Motor Car Is a Necessity

Recognized in its true light by the Government, the business world and the individual buyer, the Automobile now casts aside the words "Pleasure Car" and appears properly classified as a vehicle of **SERVICE—a "Passenger Car."**

Have you been a member of the "Ponderers' Class?"

Have you often wondered how your neighbor could "afford" a car?

Cast aside the wonderment. Quit the "Ponderers' Class." Apply the sound principles of sound judgment and ask yourself: "Can I afford to be without an automobile?"

THINK—reason with yourself—what is your time worth?

Is your neighbor's day more productive than your hours of business activity?

The Passenger Car and commercial vehicle "stretch time" by shortening distances.

The doctor makes more calls; the salesman "covers" larger territory; the merchant arrives at his store earlier and in better humor; thanks to the Passenger Car.

Everybody's day is longer, brighter, less tiresome and more productive because the distance from the home to the office has been shortened; the business trip has been speedier and more pleasant; the open air and sunshine have played cheerful parts in the day's endeavor.

Such days have a "Dollar Value" which shows on the right side of the Ledger.

These days are good reasons why your neighbor can "afford" a car.

Your neighbor's ruddy-cheeked children, the happy, contented mother, the dear old grandma with "never an ache or pain," are envied by everybody who sees them. They are happy, healthy specimens of human nature, thanks to the afternoons and Sundays spent in the Passenger Car.

The auto-owner not only lengthens his own business-day, but he also lengthens his family's living-days.

The scarcity of doctor's bills—the absence of long and costly health trips for a sickly wife or feeble grandma, are reasons why your neighbor can afford a car.

The active, healthy mind of a robust child is priceless. The child in the open air drinks in through observing eyes the true picture of the grandeur of hills and valleys. The mental picture of lake, river, mountain, seashore, forest, field and farm is more convincing and more beneficial when developed on a tour of the National and State highways than when drawn from the flat maps and dull pages of a geography.

History has dotted the State with places of interest.

These places can be visited by the Passenger Car.

Thus are Geography and History taught in practical manner with the aid of "Daddy's car."

In these features alone the motor car excels as an educator. At the same time the great out-of-doors is building tissues of brain and muscle. A priceless combination of education and health-building.

How can anything as NECESSARY to you children's physical and mental welfare be considered a luxury?

That which lengthens the busy man's day is no luxury.

That which increases your field of business endeavor is a necessity.

That which lengthens the life of every member of your family can well be afforded.

Owning that which saves health, time and money is true economy.

That which moulds a healthy family and assures more efficient employers and employees is genuine American Patriotism and Progressiveness.

All these are embodied in the possession of an automobile.

All that a passenger car is to the individual, the commercial car is to the business house.

When you have purchased a car you have multiplied your efficiency by two or more; you have retained a family doctor at no extra cost; you have employed a tutor for your children, a physical instructor for your entire family; you have acquired a personal and business asset that you cannot afford to be without.

THESE PROGRESSIVE AUTO DEALERS OF NEWARK

Autocar Sales and Service Co.
"Autocar Motor Truck"
418 Washington St. Mkt. 7900

Herman Bartuch
"Dodge V"
80 Central Ave. Mkt. 9532

Bonnell Motor Car Co.
"Dodge Bros." "Horse"
520 Broad St. Mkt. 9721

Broad Auto Co.
"Ford"
985 Broad St. Mkt. 3772

Chevrolet Motors Co.
"Chevrolet"
400 Central Ave. Branch Brook 3429

Detroit-Cadillac Motor Car Co.
"Cadillac"
536 Broad St. Mulberry 3240

Dell-Slingerland Co.
"Hudson", "Ford"
229 Halsey St. Mulberry 3302

Farr Motor Car Co., Inc.
"Ford", "Horse"
534 Broad St. Market 7271

Federal Truck Co. of Newark
"Federal Truck"
356 Halsey St. Market 1086

are ready to give you unselfish, unbiased assistance
in purchasing. To keep in step with
business and social advancement

H. A. Garabalis
"Diamond T Truck" "Lorraine Truck"
282 Washington St. Market 1628

The Greene Motor Car Co.
"Lorraine", "Studebaker"
90 Washington St. Mulberry 1815

Hardman Tire and Rubber Co.
"Hardman Tire"
30 William St. Mkt. 9050

Hoagland-Thayer, Inc.
"G-M-C Truck"
300 Washington St. Mulberry 1500

Floyd C. Huff Motors Co.
"Standard V"
244 Central Ave. Mkt. 1145

Hudson Motor Car Co. of New York
"Hudson"
846 Broad St. Market 2216

Harburt Motor Truck Co.
"Harburt Truck"
26 Branford Place Mkt. 5011

BUY A CAR NOW

Isotta Fraschini Motor Co.
"Brisco-Bank" "Woods Deal Power"
71 Central Ave. Mkt. 4229

C. P. Kautzmann Co., Inc.
"Lorraine Efficiency Truck"
403 Clinton Ave. Waverly 4045

King Sales Co.
"Ford"
449 Central Ave. B. B. 5680

Marmon Co. of New Jersey
"Marmon"
90 Washington St. Mkt. 3619

Manufacturers' Tire and Rubber Co. Inc.
"Tires, Tubes, Etc."
218 Halsey St. Mkt. 2228

North Jersey Motor Vehicle Co.
"National"
541 Broad St. Mkt. 3741

North Newark Auto Co. Inc.
"Chevrolet"
37 Bloomfield Ave. B. B. 5400

Paddock-Zasi Motor Car Co.
"Chevrolet"
894 Broad St. Mulberry 2271

Paige-Detroit Co. of Newark
"Paige-Detroit"
538 Broad St. Mkt. 3875

Wm. Parkinson Motor Sales Co.
"Ford"
372 Central Ave. Mulberry 2209

H. G. Pederson
"Dodge-Baker"
228 Central Ave. Mkt. 9246

Reo Motor Car Co.
"Reo"
37 William St. Mulberry 3030

Rice-Macrae Motor Truck Co.
"Rice Truck"
228 Halsey St. Mkt. 3730

Sanderson Motor Car Co.
"Dodge V"
496 Central Ave. Mkt. 3619

Stanley Steam Car Sales Co.
"Stanley Steam Cars"
290 Central Ave. B. B. 5721

Calvin Tomkins Electric Garage Co.
"Electric Trucks"
287 Halsey St. Market 8426

Vetlich-Hall Motor Car Co.
"Ford"
254 Central Ave. Mkt. 406

W. I. B. Motor Truck Co. Inc.
"Horse", "Truck"
291 Halsey St. Mkt. 8684

F. H. Walsh Auto Service Co.
"Horse", "Truck"
350 Halsey St. Mkt. 8684

The White Co.
"White"
33 William St. Mkt. 745

The Whiting Motor Co.
"Whiting"
486 Central Ave. Mkt. 7876

Wiener Tire Co.
"Frank Tires and Tubes"
211 Halsey St. Mkt. 1501

Editorial Observation

New York's War Show

THERE is no gainsaying the fact that war conditions numerically reduced the attendance at the Grand Central Palace Show. Another fact was equally evident, namely, that the attendance last week averaged higher in real prospects and actual buyers than the show of last year.

There were fewer curiosity seekers. There were more moneyed people than at any previous show—that is, the percentage was higher, and if actual attendance figures could be analyzed, unquestionably the total attendance of people well able to buy even high-priced cars might exceed that of a year ago. Exhibitors of higher-priced cars, after a few days' reflection on the show, consider it a more potential selling show than that of a year ago.

A casual analysis of the attendance indicated that there were fewer of New Yorker's ultra-wealthy and fashionable set than at former shows. There were fewer women. There were fewer young men between 20 and 30.

On the other hand there were more middle-aged people who seemed to represent many industries that

are making a great deal of money out of the present war.

This opinion seemed general throughout the show. Unquestionably a new class of wealth is being created throughout the country because of war orders, and many of these are bigger buyers of medium- and high-priced automobiles.

There was no evidence in the show of a holding back of purchases with the thought that cars might become cheaper. Neither was there any apparent eagerness to hurriedly purchase for fear that production might be curtailed and there would be a scarcity.

The advertising campaign and selling arguments advanced by some over-zealous distributors that intending purchasers had better buy now for fear of a shortage of cars due to shortage of material, government action, shortage of coal, or any other alleged condition has fallen miserably flat.

Such a campaign was early interpreted as purely a selling scare on the part of some dealers and an effort to prematurely close sales. Undoubtedly such advertising is going to react as a boomerang on those who pioneered it.

The Coal Situation

A LITTLE over a week ago there were 107 ocean liners delayed from sailing from Atlantic ports due to a shortage of coal. During the last week—the week of the New York show—it is reported that for 4 days not an ocean liner was able to clear from an Atlantic port because of the coal shortage.

These are facts that mean a great deal to all industries, and when there is not enough available coal for such needs as our ships to carry supplies to our army in France, as well as to our Allies, it is high time that everyone bend every effort to clear up this immediate situation.

With schools closing in nearly all of our large cities, with churches holding union services, with many office buildings closed part time, it is pertinent that everyone should more rigorously look to the conservation not only of present fuel supplies, but also of our railroad equipment.

Undoubtedly the present coal shortage on the Atlantic seaboard is due to a congestion of railroad cars. A report 10 days ago showed 38,000 freight cars clogging the tracks along the seaboard.

Not only are these cars filling up the sidings but they are obstructing main lines and the congestion is not limited to 10 or 150 miles along the seaboard but is extending back in some cases 100 to 150 miles.

If the railroad tracks were clear and the freight cars empty there would be no difficulty in getting ample quantities of coal to tide water, where it is needed to fill the bunkers of ocean vessels.

With this extreme condition ruling along the seaboard, every citizen must be more considerate and give greater co-operation in this movement to relieve freight congestion. The need is so urgent that normal procedure is upset and every person must adopt super-normal methods to do his part in relieving the situation.

Dealers must give more attention and quicker attention to unloading motor car shipments. There must be no delay. The demand is imperative. Where a freight car has waited a day and a half extra effort should be made to get it unloaded in a matter of hours.

If every motor car dealer did this, if every business house receiving freight did this, and if the hours required to unload a car were reduced to 8 or 10 an immeasurable job would be done to relieve the general condition and expedite the shipment of supplies

to our soldiers over seas as well as coal to all ocean-going vessels.

When the flow of men and materials and foods and clothing for our armies, and those of our Allies, is being held up, it is time for united co-operation. It is time for the man in Kearney, Neb., to do his part. It is time for the man in Macon, Ga., to do his. It is time for the man in Bangor, Me., to do his. It is for the man in Lawton, Okla., to do his.

There must be no holding back when the urgency is so imperative as it is to-day.

The Essential Motor Car

THERE never was a time since Charles E. Duryea ran his first motor car in 1892 that the car has such an opportunity to demonstrate its essential nature as it has to-day.

Our national transportation system centered in railroads has practically broken down. Nature has served out more extreme weather conditions than are usual at this season of the year. This is particularly true in the great factory zone lying east of the Mississippi River and north of the Ohio.

The East has had colder weather than any time in the last 6 years. The Central West has been tied up with snow worse than for many years.

This condition, coupled with the shortage of man power, due to so many of our people being in the army; coupled with the shortage of coal due to inability of railroads to handle it, and due to the general uncertainty in many industries, has brought the motor car and the motor truck into the limelight as never before.

There is a real need for motor cars to-day. The need is greater than that of a year ago. In places, coal merchants are not able to deliver as they should. The half-ton deliveries made to a home each week instead of 5 tons being delivered at one time have added to the mileage of vehicles making deliveries so that to-day they cannot serve as many customers as a year ago.

Motor cars have been pressed into emergency coal service and thousands of car owners have carried bags of coal home in their machines. The same is true of barrels of wood that have been delivered by the car owner to his own house when the coal and wood merchant was not able to make the deliveries.

Such imperative needs for a car were not realized before.

Looking ahead to the coming summer with the same thought in mind, there are undoubtedly hundreds of thousands of families who realize that there unquestionably will be a shortage of railroad passenger trains and not sufficient capacity to handle the travel.

There will be hundreds of thousands of families wishing to visit their sons in the different cantonments and to be certain they can do so they will have to go by motor car. The railroads will be glad to be relieved of such traffic.

The removal of snow and ice is not going to bring the railroads back into normal condition to handle the traffic. The shutting off of millions of furnaces and stoves around May 1 is not going to materially relieve the situation because at that time the great quantities of war munitions for our army will be moving.

For example, our Liberty engines are not yet in production, but they will be in production in March and there will be heavy shipments during each month thereafter. These will call for great railroad capacity and they must be shipped. No matter how many passenger trains are cut off, our war munitions must be carried to seaport.

Huge quantities of ammunition, shells, etc., will have to be moved from the great manufacturing zone of the Great Lakes to seaboard and this will be at its height during the spring and summer. Parts for large guns, which are being manufactured in the zone of the Great Lakes will have to be removed to tide water.

Great quantities of food supplies must be moved because we will have perhaps a million men to feed in France who last year were scattered over the country and all of their food, clothing, and every necessity represents added railroad transportation as compared with the summer of 1917.

To this add the fact that we must furnish more supplies by way of food to England's army of 5,000,000 men. We must furnish more to the great French army. We must furnish more to the great Italian army. We must furnish more to the Portuguese army; in short we must furnish more to all our Allies.

All of this tremendous additional equipment must pass over our railroad lines. These railroad lines are not so well maintained as a year ago. Their locomotives are not in such good condition. Their freight cars are not in such good condition. The crews are

not so competent, because from the railroads have gone over 15,000 trained men to assist operating the railroads of France.

With all these thoughts in mind do not overlook the great fact that passenger cars will be more used than ever before. They must be. People will not be able to reach their summer resorts, except by motor car. Many families will not be able to get railroad

transportation to the cantonments and will have to use their motors.

Unquestionably the coming summer will usher in an enlarged field for the motor car in long-distance work, and where a family last year made the trip from Colorado to the White Mountains largely for pleasure, the coming summer will see them make it because of necessity.

The Essential Truck

SOME months ago, Great Britain stopped railroad strains carrying freight within the zone of 20 miles of the center of such cities as London, Liverpool, Bristol, Coventry, etc. For example, a merchant could not ship freight out of London to any point within 20 miles of his place of business. It had to be shipped by motor truck. Conversely any factory or business house within 20 miles of the heart of London could not ship its freight into the city. It had to go by motor truck.

Within the zones of large cities in America radical action is already being taken to relieve the congestion of the railroads. For example, in Philadelphia and some other centers the railroads cannot be used for carrying freight within the city limits, that is, from a depot in the north end of the city to a depot in the south end.

Such freight must be moved by motor truck or horse vehicle.

Such regulations are bound to become general in practically all of our large cities located in the traffic congested zone which might be broadly outlined as East of the Mississippi and north of the Ohio.

In several of our cities the 25-mile law will undoubtedly be established, namely, that of preventing the shipment of merchandise within a radius of 25 miles in the heart of the city, the same as the English plan.

At the start it would be unfortunate if the 25-mile limit were set. A better plan would be to start a 10-mile limit, then raise it to 15, next to 20 and finally to 25. There would not be so much confusion with such a plan.

Dealers should immediately lay plans for such eventualities as a 25-mile rule if they are located within the large cities. Their salesmen should be prepared in advance on such a selling campaign.

When such an order comes it will come over night, and there will be a hysteria the next morning. Such can be avoided, at least, to quite an extent, by preparing in advance.

The up-to-date dealer will have the volume of business moved from the center of his city to outlying stations in the 25-mile zone all tabulated. He will know how many truck loads of freight must be taken each day from his city to each of these outlying towns. He will know how many trucks are necessary for this work. He will know the best streets for such work, and if there are not well-paved streets at present, he should immediately urge his city council to prepare meeting such an exigency by improving the streets.

Careful preparation is 90 per cent of the work. There will be enough congestion when such a situation arises in spite of the best preparation, but without careful preparation there will be chaos.

The Long-Distance Truck Haul

THOSE countries that have risen to great distinction in the history of the world have risen by means of their improved system of transportation. No country has ever gained distinction and become a leader nation without being a leader in transportation.

Transportation is one of the great civilizing and educating forces of the world. It brings men face to face in business who were previously strangers. It

breaks down wrong conceptions between man and man.

Heretofore, the motor truck has not been considered an economical means of transportation for distances above 75 miles. Some industries declare that the motor truck cannot be used economically when the one-way haul is over 50 miles. There are others who say the motor truck is more economical than the

railroad when the haul is 75 miles. There are a few who declare that it is more economical for them to use the motor truck when the haul is 100 miles.

This difference of opinion largely depends on the nature of the roads, the nature of the merchandise and the degree of promptness necessary in handling the goods.

To-day, for deliveries within such distances, the motor truck is quicker than the railroad and as such it is a more desirable means of transportation even if the cost may be higher.

Take a parallel. It is cheaper to send a motor car by sail-boat from New York to Cape Town or Melbourne or Buenos Aires or London than by a steamboat. Then why does the exporter demand that his motor car be shipped by a steamboat when the cost is greater?

The answer lies in the economy of time. You can rely on the steamboat making the trip in 20 days to London, or a month to Buenos Aires, but you can place no reliance on the sailboat. The length of time it requires to make the trip depends on the caprice of the winds. It may be 2 months and it may be 3.

No business man in Buenos Aires would be content to sell motor cars if shipments were made by sailboat because he could not rely on shipments. He is willing to pay the higher price of the steamboat in order to get his goods on schedule.

Look at the comparison of the motor trucks. For short distance hauls, with the exception of a few winter days, the schedule is practically reliable. The merchant can rely on his goods arriving within a few hours of schedule rather than several days as in the case of railroads. That merchant is willing to pay the higher price for schedule deliveries.

One merchant may answer that the cost is so small to ship goods by railroad from the heart of the city to a point 21 miles out that it is out of the question to use the motor truck. He cites the case of a grocer whose margin of profit is so narrow that he could not afford to pay the price for truck delivery as compared with railroad delivery. He declares that the grocer would have to raise his prices and that the people would pay them. He makes out a pretty good case.

This merchant forgets, however, that it is that cheap short haul that has put the railroads in bad condition at the present time. The railroads are losing money on the short haul and they have been tacking these losses onto the long haul. It has been bad business and the merchant and the buyer have had to pay the bill. The rates have been economically unsound. This fact is agreed to by many railroad and expressmen. They admit the losses by the railroads on the short haul.

With this fact agreed to, why should the motor truck maker and the motor truck dealer continue with this transportation fallacy?

It is such fallacies that have to be uprooted in war times. As one great transportation man said a few weeks ago, "the element of cost cannot and must not be considered to-day as it was a year ago."

The motor truck dealer must view motor truck transportation under war conditions and under the new conditions created by the stress of war whether the merchandise in question is directly connected with the war or not.

Do Your Part

WE are too prone to speak of the government as "down in Washington," and criticise the people handling the government as if they were a different race from ourselves and as if they had nothing in common with us and as if we had no relations with them.

This is the old fallacy of a political government, a government in which we elect men to play politics and enact stupid legislation.

To-day we have a different government in Washington. It is a government of industries and a government of the people. The government is no longer confined to the city of Washington or the District of Columbia. It has spread to every motor car factory whether it is manufacturing trucks, aircraft engines, or other munitions of war. The government has spread to every city of the land. It has spread into every organization of dealers. It has spread into every household.

To-day it is not the government "down in Washington," but it is the government in our own town, in our own organization, in our own factory, in our own repairshop, in our own garage. *We, as individuals, are more a part of our government than ever before.* We must be a part of it. We must work with it. We must work in obedience to its requests. We must aid it.

The Fuel Administrator in Washington cannot relieve the coal situation unless every factory or business house unloading a freight car, or loading one, does it promptly and with the least possible delay. The Fuel Administrator cannot conserve enough fuel to keep all of the motor cars, motor trucks, and tractors of the country running, as well as keeping the Allies supplied unless we all do our part with our individual cars in cutting down the waste. Each garage must do its part. Each repairshop must cut out the leaks. Each dealer must play his part.

Winter Business

Plans
Without
Action
Fail

Send Out These Car Repair Letters

Keep your shop busy this winter. It can be done, as has been proved by a large number of dealers, garagemen and repairmen who have sent out letters and solicited business and found that the old-time loss period has been made one of profit. Send out these letters about 5 days apart. Start NOW.

Car Repair Letter No. 1

Your car will have a busy summer. So shall we.

But now neither your car nor our shop is as busy as they will be in a few weeks. The summer's service has been rather hard on your car and there are some things that need to be done to it before it is run another season.

If you will bring your car to us now for fixing and adjusting we can assure you far better service than later when cars will be coming in just ahead of the spring touring season. We are always rushed then, which works to the inconvenience and disadvantage of both ourselves and our customers.

Right NOW we can give you plenty of time and attention and assure you lower prices than later on. It will assure you that your car will be ready later when you want it and will be a benefit to us in that it will keep us busy now when work is slack and relieve us of the rush when spring comes.

Please consult with us as soon as you conveniently can, because it is our desire to give you the best service and prices at our disposal.

Car Repair Letter No. 2

A few days ago we requested several of our car owner friends to bring their cars in for fixing and adjusting now and help us keep our shop busy and also to relieve us of the big load of work that comes just ahead of the spring season.

Quite a number responded and their cars are being rapidly fixed up in a manner and at a price that is highly satisfactory to them.

We have just a little leeway left in our working schedule and would like to handle a few more cars now instead of later in the season.

After a summer of use there probably are numerous little things that ought to be done to your car, and we will consider it a favor if you will let us serve you now instead of later in the season.

We have the best shop in town, capable men, up-to-date machinery and can give you satisfaction. That we guarantee.

Drive down any day and let us inspect your car in order that you may know its real condition. Sometimes there are little things that you don't notice until they become big troubles.

Car Repair Letter No. 3

Running a car season after season without having it touched by a skilled mechanic is often considered a point of great merit in the car. But generally cars that aren't looked after once a year go to pieces all of a sudden some day and the owner can't understand why.

The reason is that the car was full of little bits of trouble all the time. These troubles kept accumulating, but didn't affect the car's operation. Then all of a sudden they all grew big at once—and the end came.

After every season, especially one such as we have just had, your car should be looked over and at least tuned up.

It is our suggestion that you bring it to our shop, let our mechanics inspect it and advise you as to its condition.

Incidentally, we can give you better service NOW than later, because we are right between the summer and spring rushes. We have plenty of time and room to handle your work.

Drive down any day.

Are You Selling Farm Lighting Systems?

EARLY in the winter Motor World pointed out the good business that lies for dealers and garagemen in the sale of farm lighting systems. It is a new field and whether the motor car men get it depends on whether they take it up NOW. An Ohio jobber says he is doing a good business in farm lighting systems, but that he generally has to place the business with small electrical contractors because the motor car men say: "Yes, it surely looks like a good thing—but I guess I won't take it on NOW." The result is that the small

electrical men are grabbing this baby business and will have it all sewed up unless the motor car men grasp the opportunity. Why let a good thing get away from you? True, you may have to make a new arrangement within your own organization if you are to handle it, but isn't that worth while if you can make some extra money? The jobber says the farm lighting dealers have found many country houses all wired, waiting for the coming of electricity, and in those cases the job is easy. The opportunity is here—and BIG.

Send Out Some of These Letters NOW

SENDING out letters is one of the easiest ways there are of getting business. It is an inexpensive form of sales call. A man can't begin to compete with a letter when it comes to the cost of selling, and oftentimes the letter is more effective than the call of a salesman. Comb your prospect list; throw out the dead ones; line up those that look like the best prospective buyers and bombard them with business-getting letters.

Trailer Letter

Did you ever stop to consider that it isn't necessary to have an expensive motor truck or motor delivery wagon in order to carry things around town?

Did it ever occur to you that a regular motor car, that is used for touring Sundays, can do this work just as well as a delivery wagon and without harming the automobile—on one condition?

That condition is that you provide the car with a Blank Traller.

The Blank Traller is quickly and easily hitched on behind any car. It will carry a load up to a half ton. It saves the car from ruin through being used as a truck and gives the car owner both a car and a truck for a fraction of the cost of both.

Inclosed is a booklet telling about the Blank Traller. You will find it worth your while investigating.

Telephone some morning and let us show you how easy a Blank Traller can carry a load for you. We'll carry a load for you free and you won't be under any obligation either.

Radiator Cover Letter

A piece of paper stuck on the front of your radiator is, in a way, a means of keeping your motor warm, but it isn't very sightly, is it? And neither is it very efficient. A real radiator cover is far better.

Our covers—and we have a full stock for all cars—are made to fit perfectly and are of heavy leather, wool lined. They have a simple strap and clasp arrangement so that you can roll up the front whenever the weather permits.

Prices are \$2.50 for the radiator cover, or \$4 for the complete radiator and hood cover.

You will like our service. No need to step out of your warm, comfortable car. No discomfort. No time lost. Merely shut off the gas, step on your brakes and "toot" as you reach our store. Our cover expert will run out, ask your desires, measure your needs, fetch the cover and adjust it securely.

Better stop and "toot" TO-DAY. To-morrow may be below zero.

Racing Body Letter

Did you ever see a car with a rather racy type of body without sort of wanting a car like that? You probably figured, like most of the rest of us, that you would like such a car, but wouldn't want to go to the expense of fitting it up.

Right there is where you may have overestimated the situation. It doesn't cost as much as you perhaps think to dress a car up in sporty 1918 clothes.

We have a line of bodies which works wonders in the appearance of cars that were built before the present line of body styles appeared. These bodies are not of the 1917 type. They are in a class by themselves.

One of them will make your car the equal and more of any 1918 model on the road. If you will drive your car to our place of business we shall be pleased to give you an estimate on making your car into a snappy modern model.

Enclosed Car Letter

Cold days are here.

And because of these cold days a lot of people are going to lay up their cars and not drive. Their reason—and it is a good reason—is that it is so cold and windy that driving is uncomfortable.

But have you ever considered the comfort that lies in an enclosed car—a sedan?

In the Blank touring sedan you are protected from all the rigors of winter. You are not less comfortable than you are in your own easy chair at home.

Your hands don't get cold, your feet are warm, you can loosen or remove your overcoat, you can sit in comfort.

And when summer comes the car becomes a touring car again.

In our showroom we have a new model of the Blank sedan. Our purpose in writing this letter is to invite you to come and see it. It is the latest thing in motor-dom.

Truck Attachment Letter

Do you know that it is possible for you to have a truck without paying what a truck costs?

It is possible for you also to have a truck which operates more economically than the average truck.

How is this done?

This is the way:

You utilize your Ford plus a Blank Truck attachment.

The motive power is the same little Ford engine that has been driving your car around town for some time. You know all about this engine—what it can do and what it costs to run it, and all about it. You are already familiar with the principal part of the outfit. We don't need to tell you anything about it.

The rest of the outfit consists of rear wheels, an axle, a drive shaft and body and there you have a 1-ton truck. Enclosed is a booklet showing what these rebuilt Fords are like and can do, but you can't really appreciate the situation until you see one.

We have one. Drop in and see it or ask us to drive it to your place. It's running around town every day and can stop to see you at any time.

Vulcanizing Letter

Sometimes the men who run garages and sell cars and the men who drive cars wonder what winter is for. We all would rather have it some other season. But there is no cloud without its silver lining, and the silver lining in the cloud of winter is this: It gives you time to have your car put in shape and gives us time to do this work carefully and at reasonable rates.

Our immediate concern is for your tires. We have just fitted up a tire department and are ready for business.

Your tires probably have many little cuts in them that will become blowouts later on if not fixed now. It will save you money to give them attention at this time when we both have time for the work.

Drive down any day and we shall be pleased to give you an estimate on the treatment your tires should have.

Repairshop Shortcuts

From The Motor World Roadman

No. 1520—AUTOMATIC CUTOUT

Whenever an electric motor is operating on a line and the current suddenly ceases or the voltage drops so that the motor stops, sudden resumption of the power is liable to injure the motor, owing to the sudden application of the load. By the use of the device that automatically opens the motor switch when the voltage drops or the current ceases, damage to the motor is prevented. Such a device comprises a magnetic coil placed in series with a lamp across the power line and holding a sliding weight. This weight is so placed that when dropped because of insufficient magnet strength caused by voltage drop, it trips a trigger and permits the spring to pull the switch open. Such a device is easy to construct and may save considerable damage.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1521—PHONE CALL SYSTEM

This telephone call system is for places that use two telephone systems, and not only designates the person that is to answer the phone but also the phone that is to be answered. On a board mounted to a roof beam, so that it may be seen from anywhere in the shop, are a bell and two lights—one red and one white. All are on separate circuits, the bell being operated by a push-button and the lamps by common car lighting switches. When the telephone call comes to the office, where the switchboard is located, the bell is rung, the number designating the person called. Then the light for the telephone to be answered is snapped on and left on until the call is answered. As many sets of lamps and bells may be installed as there are departments.—Longest Brothers Co., Louisville, Ky.

No. 1522—SMALL SHOP MOTOR

An old electric motor taken from an electric car may be adapted to the requirements of a small shop at a cost much lower than the regular equipment. The only change necessary is to provide an armature that may be used for alternating current. A simple method of mounting this motor above a lathe is illustrated. A rigid framework is constructed around the lathe and the motor bolted to the top, this construction, of course, being used when the motor support and shaft hangers cannot be suspended from the ceiling.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit, Mich.

No. 1523—FENDER REPLACEMENT DRILL

When fastening new fenders to any car it is necessary to drill several holes. This in turn necessitates the removal of the wheel in order to render the parts accessible unless an extension drill is at hand that will reach the base of the wheel. This extension is made by welding the automobile twist drill on to the end of solid shaft.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit, Mich.

No. 1524—SHOP STETHOSCOPE

In many instances a stick placed in the teeth or a short length of drill rod may be used to magnify engine noises. However, as it is necessary to be constantly determining the location of noises, a special equipment is desirable. Such a special device consists of a hollow metal chamber mounted on a 2½-ft. length of quarter-inch drill rod. The feature comprises two old Ford spark oil vibrators mounted on a short arm in the interior of the metal chamber. The distance between the points may be adjusted by a small screw, and under the action of the vibration caused by the knock, strike rapidly together and intensify the sound carried to the ear. The point of greatest noise is the point nearest the knock.—John H. Klein, Stanton Garage, Denver, Col.

No. 1525—PETCOCK WRENCH

It is not an easy matter to remove petcocks without injury, particularly when these are hidden behind other parts of the engine. A special wrench for this purpose comprises a shank of ¾-in. water pipe having notches cut at the lower end for engaging the petcock and a cross handle at the upper end. Wooden file handles may be fitted to the crossbar, giving a convenient purchase, and socket wrenches may be made in a sim-

ilar manner.—Packard Motor Car Co., Detroit, Mich.

No. 1526—VALVE PLUG WRENCH

This wrench is for Packard valve plugs and clutch shaft rear bearing jam nuts. It is 1¼-in. cold-rolled steel, three hardened-steel pins being fitted into one end and the opposite end ground down hexagon, measuring 1¼ in. across the flat surfaces. The over-all length of the wrench is 7 in. and the hole for the handle is ½ in. in diameter.—Packard Motor Car Co., Detroit, Mich.

No. 1527—GEARBOX HOIST

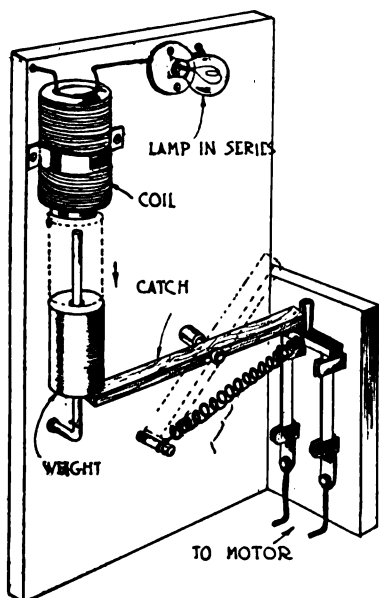
The removal and replacement of the gearbox in closed cars is extremely difficult, due to the fact that an overhead chain block cannot be used. In such cases the gearbox hoist illustrated is necessary. The standard is angle iron bolted together in the manner shown and carrying a small chain block, to which is attached the gearbox cradle. This cradle comprises a cross-member of 1-in. round stock carrying two steel loops made of spring metal strips measuring 1/32 x 2 in. A thumbscrew at one end permits these clips to be removed and inserted beneath the gearbox.—W. L. Toffar, Winton Co., Philadelphia.

No. 1528—DODGE ENGINE SUPPORT

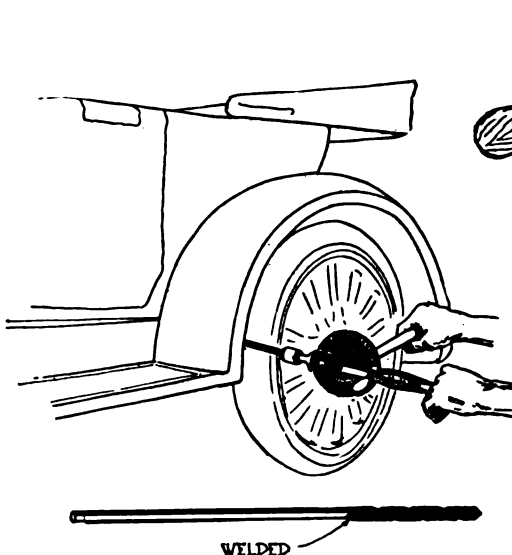
The front engine support of the Dodge is carried on a cross-member, and when any of the parts are removed it is necessary to support the engine in some manner. If blocked up from beneath, it is impossible to remove the car. Hence a triangular wooden support resting on each side of the frame at the rear of the radiator and holding the front end of the engine by means of a hook caught around by a fan bracket permits the front assembly of the engine to be removed without difficulty.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh, Pa.

\$1 a Shortcut

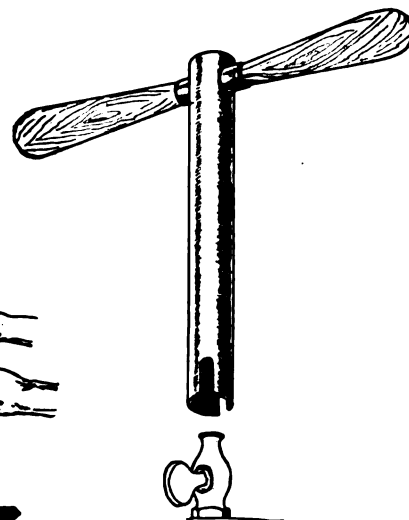
SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.



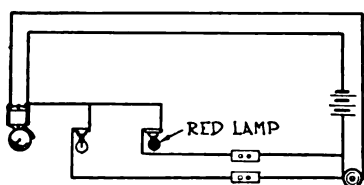
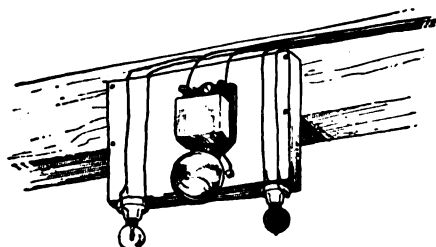
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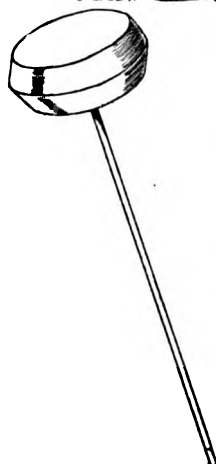
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No. 1521

VIBRATORS FROM FORD COIL

ADJUSTING SCREW



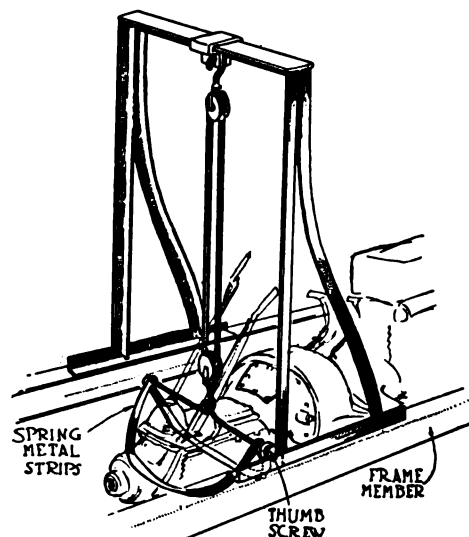
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HARDENED STEEL PINS

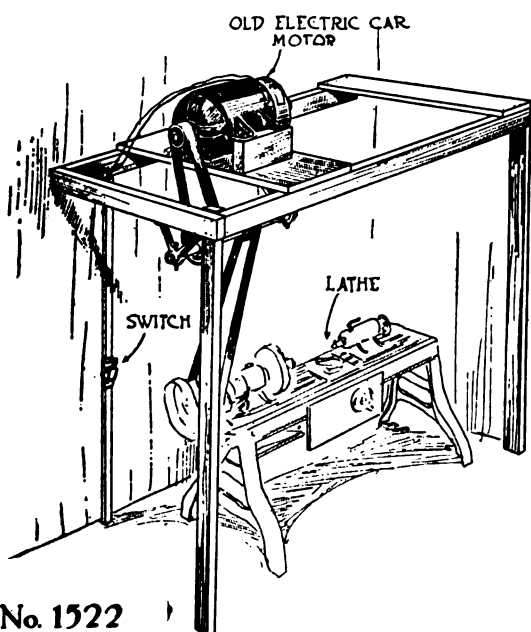
1 1/2" FLATS



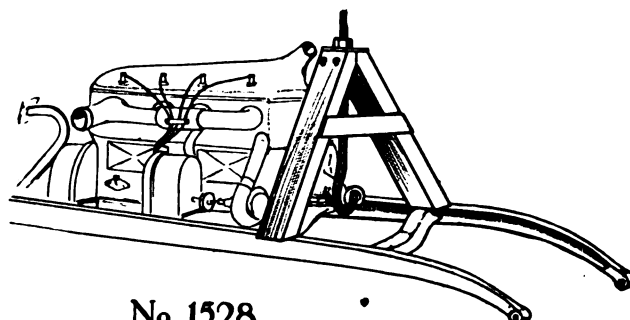
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No. 1527



No. 1522



No. 1528

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Is He Really "Sore"?

Editor Motor World: During the past year we have been using for advertising purposes a picture of a car being driven by one of our customers.

Recently we had a dispute with this customer over a repair bill, and he said that he would "make it hot for us" because we had been using his photograph without his permission.

As a matter of fact he has known all along that we have been using this picture and has seemed rather proud of it. Will you tell us what our rights are and whether he can do anything, as he gave us the picture himself?—T. J. L., Albany, N. Y.

Answer—In a number of States, such as New York, for example, one person has absolutely no right to use another person's photograph for advertising purposes unless the first person has given his consent for such use in writing. The New York statute relating to this matter is as follows:

"Right of Privacy—A person, firm or corporation that uses for advertising purposes, or for the purpose of trade, the name, portrait or picture of any living person without having first obtained the written consent of such person, or, if a minor, of his parent or guardian, is guilty of a misdemeanor.

"Any person whose name, portrait or picture is used within this State for advertising purposes, or for the purpose of trade, without the written consent first obtained as above provided, may maintain an equitable action in the Supreme Court of this State against the person, firm or corporation so using his name, portrait or picture, to prevent and restrain the use thereof; and may also sue and recover damages for any injuries sustained by reason of such use; and if the defendant shall have knowingly used such person's name, portrait or picture in such manner as is forbidden or declared to be unlawful by the last section, the jury, in its discretion, may award exemplary damages.

"But nothing contained in this act shall be so construed as to prevent any person, firm or corporation practising the profession of photography from exhibiting in or about his or its establishment specimens of the work of such establishment, unless the same is continued by such person, firm or corporation after written notice objecting thereto has been given by the person portrayed."

Under this statute you are undoubtedly subject to a suit for damages if your customer cares to start one, and I believe you are also technically guilty of a misdemeanor. Do not worry about the matter, however, because if he gave you the picture himself and knew that

you were using it, no sane man would consider that he had been "damaged" to any extent.

In a case where a dealer wishes to use a photograph for advertising purposes, the only safe thing for him to do is to get the written consent of the photographed person to such use. Verbal permission is not enough because the statute says that the permission must be in writing, and it is unsafe as a general rule to go on the theory that because a person has given you a photograph and is a friend of yours he will not object to your scattering it broadcast in an effort to increase your business.

Owner Takes Risk

Editor Motor World: An automobile is owned by a resident of New Jersey and is kept in the State of New Jersey. The owner obtains a New York car license for the year 1917. Could he put this 1917 New York license on his car on the 1st of January, 1918, and use it in the State of New Jersey for fifteen days?

This question is brought about from the fact that New York State allows the month of January to procure new licenses, whereas in New Jersey the new license must be had on the first of the month.—HENRY E. HIRD, Passaic, N. J., Samuel Hird & Sons, Inc.

Answer—I would not advise using the New York license in New Jersey after the first of the year if the car owner is a resident of New Jersey.

The reciprocity clause in the New Jersey law was meant only for non-residents, of course, and although a resident of New Jersey might succeed in using his New York license until his new New Jersey license was received, I think he undoubtedly would be considered to be unlawfully displaying the New York license if that fact were brought to the attention of the New Jersey authorities.

Buyer Has Disappeared

Editor Motor World: In July we sold a used car to a man residing at Lake-wood, N. Y., and filed a copy of the conditional contract with the town clerk of that place.

The note was not paid when due and we have since located the car at Meadville, Pa., sold to another man, and our customer is not to be found. We wish to ask what steps will be necessary in case the writer goes to Meadville to take

the car. Will it be necessary to replevin?—F. D. VAN WAGENEN, Inc., Fulton, N. Y.

Answer—It would be very unusual for a person to surrender a car, voluntarily, in a case of this kind.

An action of replevin would be the proper action to bring for the recovery of the property sold under a conditional bill of sale. A demand should be made on the person having possession of the car, to turn it over to you. If he refuses, then your only recourse is suit.

No Change in Law

Editor Motor World: We understand that there is likely to be a change in the Michigan law regarding the use of glaring headlights. Can you let us know what the present law requires and if a change is contemplated which would necessitate the use of headlight lenses, or similar devices?—WALES ADVERTISING CO., 110 West 40th Street, New York.

Answer—The present provision requires simply that they be equipped with dimmers.

As the only states whose legislatures convene in 1918 are Georgia, Kentucky, Louisiana, Maryland, Massachusetts, New Jersey, New York, Rhode Island, Virginia and South Carolina, the state lighting laws in all other states will remain the same for this year at least.

That Income Tax

Editor Motor World: Who must make a report of earnings under the United States income tax law?—J. J. D., Brooklyn, N. Y.

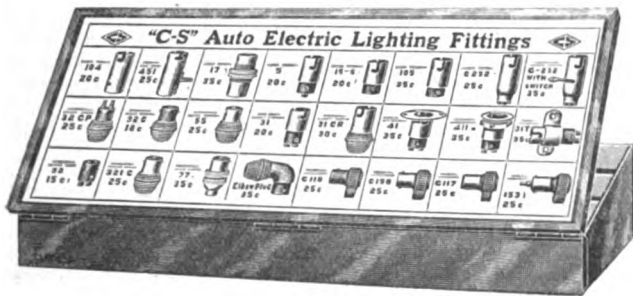
Answer—Every unmarried person of lawful age whose net income is \$1,000 or over for the year and also all married persons whose net income is \$2,000 or over.

Returns must be filed whether the persons live here or abroad and whether they are citizens or not if they live here or carry on business or own property in the United States.

Chauffeur a Servant

Judge Camant, of the Supreme Court of Oregon, just recently decided that a chauffeur is a servant. He held that if persons select the driver of an automobile and have the power to direct his work or discharge him if they feel so inclined, the driver is their servant.

Accessories



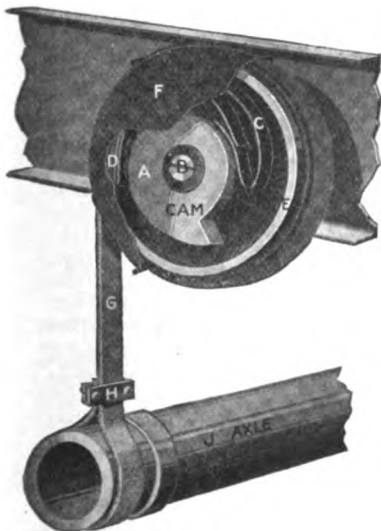
SMALL FITTINGS DISPLAY CABINET

A representative assortment of small fittings contained in a neat cabinet for window, counter or showcase. The cabinet is designed to increase sales and prevent errors in recording. It is provided with a lock and is furnished in two sizes complete with 100 and 171 prices respectively. Prices \$25 and \$42.50.—J. H. Faw, Inc., 41 Warren St., New York.



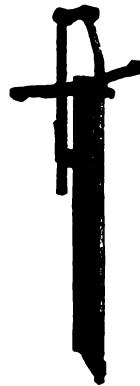
THE TEMPLE BELL

A warning signal for motor cars giving a musical note and showing a ruby light at the same time. The bell is of bronze mounted on a wrought steel frame. The standard electric socket uses a regular stock lamp. It is strongly made, all parts being riveted, and, it is said, cannot get out of adjustment. Any special emblem may be adjusted to the bell in place of the lamp if desired. Price \$10.—Motor Sales & Mfg. Co., Baltimore.



VELVET RECOIL DEADENER

A shock absorber designed to check the up-throw of the spring and deaden the shock of the recoil. The cam A is fastened, stationary, on the pivot bolt B. The drum E revolves on pivot bolt B. The spring C is fastened to the inside of the drum E, and when the car goes upward the drum E revolves on pivot A and the spring C travels up on cam A and immediately begins the gradual stopping of the up-throw of the car. On the opposite side of the device, another spring winds the drum up and the spring C immediately slides down on the cam as the body of the car returns to normal position.—John W. Blackledge Mfg. Co., Chicago.



GEMCO "ONE STROKE" JACK

The long handle gives sufficient leverage to lift any ordinary car with ease, the adjustment for a high or low car being made instantly with one motion of the adjusting rod. It is strong, compact and very simple in construction. Price \$15.—Gemco Mfg. Co., Milwaukee.

ECON-O-KLEEN

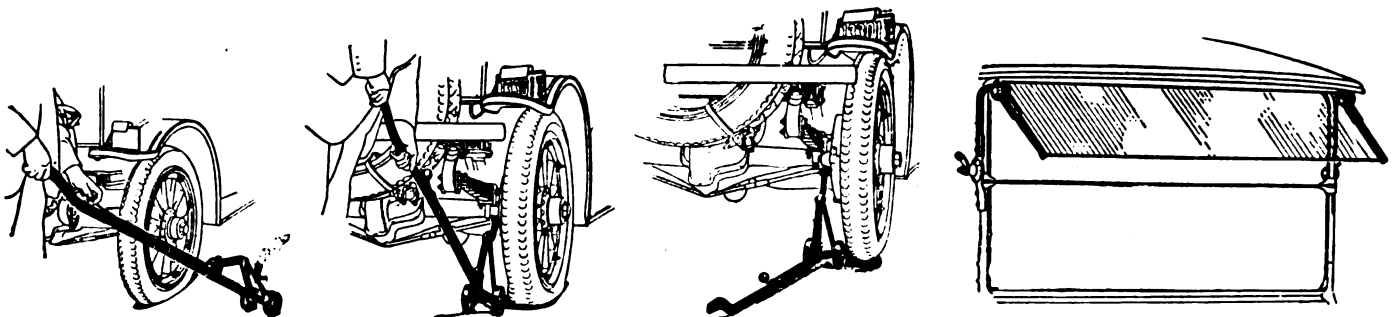
A fluid to promote more perfect combustion of gasoline. It is claimed that by its use the carbon waste is converted into power, the cylinders kept thoroughly clean and all fuel thus made directly available for power. Price \$1 per can, sufficient for the treatment of 112 gal. of gasoline.—Econ-O-Kleen Fuel Co., Thief River Falls, Minn.

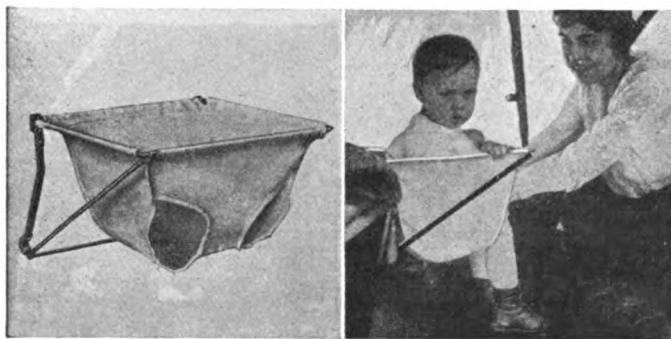
MARVEL WINDSHIELD CLEANER

A simple, easily adjusted device which cleans the entire length of the shield with one movement of the hand, affording an unobstructed view to both driver and passenger. The fibre roller bearings are so placed as to prevent any tendency to stick or bind. Price \$1.50.—Marvel Accessories Mfg. Co., Cleveland, O.

JEMCO WINDSHIELD VISOR

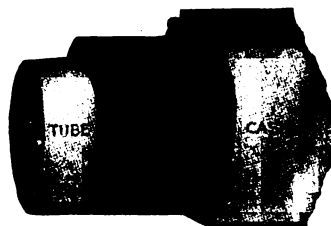
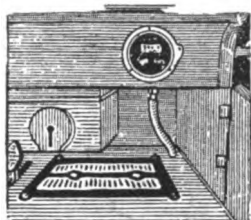
The bracket holding the visor readily attaches to the stanchion and not to the car or car top. A ratchet permits quick adjustment to any angle. The visor is 7 in. in width, affording an ample range of vision, and is made in two types, for the sedan and touring models. List prices \$10 and \$10.50, respectively.—Gemco Mfg. Co., Milwaukee.





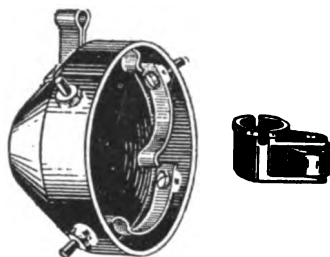
PERFECTION ROCK-A-BYE SEAT

This motor seat for very small children is made of enameled steel and washable duck, and is attached to the back of the front seat of the car by attaching two small steel slots. Hooks in the Rock-a-Bye seat engage these slots and the seats can be lifted out when not in use. Price \$2.50.—Perfection Mfg. Co., St. Louis.



COFFIELD TIRE PROTECTOR

A shield of firm, elastic rubber, without fabric, placed between the inner tube and the casing. It is claimed that it will not creep, and that it will turn any nail or similar object between itself and the casing, thus protecting the tube from injury. It is said also to protect stone bruises and rim cutting, due to under-inflation and to act as an insulator which keeps down the temperature of the tires in hot weather. It is made for motorcycle as well as automobile tires, the sizes ranging from 28 x 2½ to 38 x 5½ in. —Coffield Tire Protector Co., Dayton, O.



APCO TIMER FOR FORDS

This timer can be rebuilt when worn. It is said to overcome many troubles by the elimination of the fibre ring and the replacing of the small spring on the roller with four large springs on the case. The clock-spring steel contacts are held by special screws insulated with bone fibre and can be easily and cheaply replaced. The roller is hardened steel held in a die casting and runs on a hardened steel bushing with very little wear. Price \$1.—Apco Mfg. Co., Providence, R. I.

APCO HEATER FOR FORDS

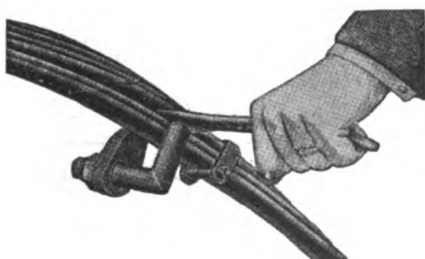
This utilizes the heat blown by the fan over the exhaust manifold and is said to heat the car comfortably in the coldest weather. The installation is made by cutting a hole in the floorboard and fastening the heater in place with four screws. It may be closed or opened by a touch of the foot. Price \$1.50.—Apco Mfg. Co., Providence, R. I.



HOWDEN GAS REGISTER

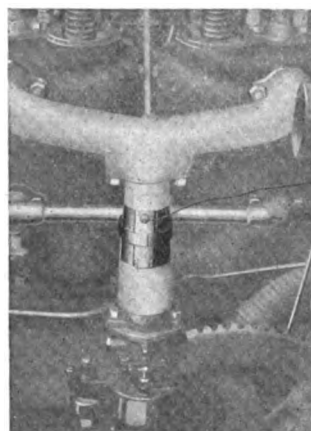
A registering instrument to be attached to the instrument board, on which may be recorded the consumption of gasoline in totals up to the minute, as well as the amount of any charge account. A glance at the dial then shows the whole amount used and also the condition for the current month. It is protected by a pin and

tumbler lock. It is built like a watch. The working parts are of steel, barreled, copper-sprayed and all nickel-plated. By means of the register and speedometer an accurate record of mile-per-gallon cost is instantly available. It is equally adapted to automobiles, motor boats, motorcycles, airplanes, trucks and tractors. Price \$10.—The Auto Gas Register Co., 51 East 42d St., New York.



STRUVE'S SPRING LEAF SPREADER

For the ready lubrication of springs. Is all steel, drop-forged and weighs 2½ lbs. The blade is 11 in. long and case hardened. When adjusted to the width of the spring a quarter turn of the lever separates the leaves. Price \$2.—H. H. Struve Mfg. Co., Cincinnati.



ELECTRIC INTAKE HEATER

The Electric Intake Heater is a small electrically operated heater attached to the outside of the intake pipe leading from the carburetor, forming a hot spot that aids vaporization and facilitates starting. The coil of the heater is wired to the storage battery through a switch mounted on the instrument board, and the switch is closed for a few moments before cranking the engine. By the resulting heat the intake pipe is heated through, so that when raw unvaporized gas comes in contact with the heated area, vaporization results. Price \$5. Electric Intake Heater Co., 115 East Cortland Street, Jackson.

GASO-TONIC

This is a gasoline and distillate tonic for use with gasoline, naphtha, benzine, kerosene, distillate, and crude oil in all kinds of internal combustion engines. It is said to reduce the cost of fuel, eliminate soot, increase power and prevent carbon deposits. It is a by-product of petroleum and is guaranteed to contain no injurious ingredients. One quart is sufficient to treat 200 gal. of fuel. Price \$7 per gal.—Sales Service Co., 13 Water St., New York.

The RETAIL NEWS

PACIFIC COAST

The Merrill Motor Co., Tacoma, Oakland distributor, has succeeded the Iles-Merrill Motor Co.

Keaton Tire & Rubber Co., Portland, has opened a branch in the Congress Hotel Building. J. S. Tormey is manager.

Barshar Motor Car Co., Seattle, has moved to new quarters at 1621 Twelfth Avenue.

Charles Kane, Tacoma, has opened an Oldsmobile repairshop at 1135 Tacoma Avenue.

N. L. Goodwin, Tacoma, has sold his interest in the McDonald-Goodwin Co., Mitchell distributor, to King E. McDonald.

Eastman Motor Car Co., Spokane, distributor of the Hupmobile and Cadillac, has moved to 1124 Sprague Avenue.

Gates Half Sole Tire Service Station has been opened at 250 Van Ness Avenue, San Francisco, under the management of F. B. Trask.

New Garages

G. H. Carl.....Carleton, Ore.
White Motor Car Co.....Seattle, Wash.
C. D. McPhail.....Portland, Ore.

SOUTH

Bradford Bros., Glasgow, Ky., have taken over the Glasgow Motor Car Co. and will conduct it under the style Glasgow Motors Co.

Wm. P. Atkinson Co., Petersburg, Va., is building a new showroom and accessories building.

Julius Morgan Motor Co., Savannah, has opened salesrooms at 122 Drayton Street, to handle Maxwell cars and trucks.

Darby's Garage, Monroe, Ga., has been improved and a vulcanizing plant and free battery service installed.

Deal Garage Co., Gainesville, Ga., has installed a vulcanizing plant and filling station.

New Garages

J. MorganPembroke, Ga.
Frank Pilcher.....Thomson, Ga.
C. R. & C. E. Wilson, Jr.....Russellville, Ala.

SOUTHWEST

O. B. Tindell, Hamilton, Mo., has opened a steam vulcanizing plant.

Paul T. Devin & Co., Joplin, have added a line of accessories.

Ross Mattheson, Nowata, Okla., will open a vulcanizing business in the Murphy Tire & Repair Shop.

Hughes Motor Co., Tulsa, will move to a new building at Second and Franklin Streets.

Grover Morrison, Dill, Okla., has bought the Dill City Garage.

E. S. Conder & Son, Girard, Kan., have purchased S. R. Snow's interest in the Central Garage and will conduct it under the style E. S. Conder & Son.

W. H. Shafer, Pratt, Kan., has sold his interest in the Swinson & Shafer Garage to his former partner, Fred Swinson.

E. G. McSwan, Pittsburg, Kan., has sold his garage and machine shop to Harlon C. Mahon and F. W. Coughenor.

J. C. Heston, Concordia, Kan., has bought the Johnson Garage.

L. R. Tripp Motor Co., Meriden, Kan., is moving into a new building.

Emil Larson, Harveyville, Kan., has bought the Grandstaff & Shrist Garage, which will be styled Chevrolet Garage.

Theo. Muckenthaler, Paxico, Kan., has sold his interest in the garage at Wamego.

Parsons Vulcanizing Works, Parsons, Kan., has moved to 210 North Central.

M. D. Ricketts, Sedan, Kan., has bought the Central Garage.

Collins & Bauer building, Wellsville, Kan., is being extended to provide room for storage and a repair department.

Tom Decker, Denison, Kan., has bought the Denison Garage and will take possession March 1.

Fred Horn, Simpson, Kan., has leased the Robertson Garage.

R. D. Joy, Coffeyville, Kan., has purchased a garage at Caney.

A. P. Turner and J. C. Bartlett, Arkansas City, have bought the Cowley County Motor Co.

Luther-McCoy Motor Co., Dodge City, Kan., has bought the vulcanizing business and equipment of W. R. Archer's battery station.

Jesse M. Shirley, Braymer, Mo., has sold his garage to M. Dunwoodie.

The Chevrolet Salesroom and Offices, Kansas City, are being remodeled.

Holliday Motor Co., St. Joseph, has been sold to Marie Mather and will be conducted by her under the style Mather Motor Car Co. The business will continue along the same lines as the Holliday Co.

Dick Pilcher, Nara Visa, N. M., has sold his interest in the Nara Visa Auto Co. to Guy Bell.

T. M. Davenport, Sulphur, Okla., has sold the Highway Garage Co.

O. C. Banks, Norman, Okla., has sold his garage to Henry Starzer and Andrew Jansing.

Ira F. Rolls and W. A. Parsons, Okemah, Okla., have bought the City Garage, Weleetka, from Arl Stringfield. It will be styled Tri-State Garage.

J. S. Mize, Waurika, Okla., is remodeling the Petty Building for salesrooms.

The 555 Tire & Vulcanizing Co., Little Rock, has installed new machinery.

Lone Star Motor Co., El Paso, is erecting a new building with a floor space of 75,000 sq. ft.

J. N. Converse, San Antonio, has bought the business of the Wheeler Auto Supply Co. and it will be styled Converse Auto Supply Co. Salesrooms on the San Antonio Motor Row have been opened.

Johnston Motor Sales Co., San Antonio, have moved into new quarters on Avenue C.

The Atlas Tire Co., San Antonio, has moved into quarters at 232 Avenue C which are four times as large as its former location.

Harry Newman, Inc., St. Louis, has opened a used car salesroom at 814 Leffingwell Avenue.

The Camelford-Truck Co., St. Louis, has opened a salesroom for the Camelford extension unit for Ford cars at 3912 Washington Avenue.

The Williamson Motor Car Co., San Antonio, has moved to larger quarters.

Quantrell Cone, Llano, Tex., has purchased T. A. Bartlett's interest in the Llano Garage.

J. R. Hill, Athens, Tex., manager for Robbins Bros., has purchased their garage business.

Asbury & Frank, Alex, Okla., has bought the White Garage.

W. T. Ames, Haskell, Okla., has bought the garage of A. C. Logand.

Rock Island Garage, Courtland, Kan., has been reopened by W. A. Bland and Wm. Campbell.

Brown Motor Co., Fort Scott, Kan., has opened a service station.

C. F. McMannis, Byers, Kan., has installed a vulcanizing plant in his garage.

Goodwin Motor Co., Wichita, has moved to larger quarters at 333 South Lawrence Street.

Mikeham Motor Co., Eureka, Kan., has remodeled its shops.

O. C. Meckenstock, Herington, Kan., has bought the repairshop of the Kramer Garage.

J. W. Gay, Wichita, Kan., has bought the M. D. Johnson Garage.

Francis Reber, Marysville, Kan., of Burket & Reber, has bought his partner's interest.

B. O. Neptune, Belleville, Kan., has bought the Hubbell Garage.

N. W. Brown, Cherryvale, Kan., has bought the Ideal Auto Garage from Don Osborn.

J. T. Godell has bought the Belpre Garage, Belpre, Kan., from Charles Barrows.

M. E. Neal has bought the garage of Charles Robinson, Bucklin, Kan.

J. T. Smith & Son, Erie, Kan., have opened the Erie Vulcanizing Shop in the Sentinel building.

Hobble & Edgington, Sedgwick, Kan., have bought the Sedgwick Garage from Morrison and Cover Horn.

Chas. E. Stewart, Dodge City, Kan., has sold his interest in the Cannon Ball Trail Garage to Louis Wess.

Claude Summer, Lexington, Mo., has bought the garage and repairshop of Wm. Palmer, Jr.

Mark E. Feltis, Braymer, Mo., has bought the garage of J. M. Shirley.

John A. Jones, Lamar, Mo., has bought the garage of Stonum & Elliott.

William Palmer, Jr., Lexington, Mo., has sold his garage and repair business to Claude Sumner.

W. A. Schneider, Sikeston, Mo., has opened a vulcanizing shop.

New Garages

V. V. Grider.....Rolla, Kan.
Frank Hays.....Hunter, Kan.
Paul Stone.....Severy, Kan.
Hill & Schafer.....McPherson, Kan.
W. A. Garlits.....Wichita, Kan.
Ray Griffin.....Burlington, Kan.
City Garage Co.....Agra, Kan.
Pinneck & Williams.....Paola, Kan.
Kansas Truck & Tractor Co.....Wichita, Kan.
Van Hercke Motor Co.....Pleasanton, Kan.
Skaer Motor Co.....Augusta, Kan.
Jack Wolfley.....Atchison, Kan.
H. C. Long.....Linwood, Kan.
Shaw-Snyder Motor Co.....Wichita, Kan.
Jenkins Bros.....Byers, Kan.
J. W. Hanly Motor Co.....Douglas, Kan.
McKebzie & Jacobs.....Phillipsburg, Kan.
Gilliland & Thomas.....Ottawa, Kan.
R. G. Beezley.....Steelville, Mo.
D. L. Shaw.....Caruthersville, Mo.
Grimes Garage & Machine Shop Co.,
Hillsboro, Tex.
Electric Service Co.....San Angelo, Tex.
Gibb & Co.....Little Rock, Ark.
C. W. Pingry.....Prague, Okla.
J. S. Swafford.....Tulsa, Okla.
O. N. Buchanan.....Stroud, Okla.
J. S. Mize.....Waurika, Okla.
W. E. Garlett.....Tulsa, Okla.
Matthews & McBryde.....Berlin, Okla.

G. L. Hudkins.....Salina, Kan.
Central Garage.....Emporia
Shelby Cuddy.....Parsons, Kan.
Walter G. Maxey.....Ozark, Ark.
The Barnett-Cowan Motor Co., Durant, Okla.
Bailes & Lytle.....Anadarko, Okla.
Ed. Walter & Joel Nelson.....Savonburg, Kan.
Jacob Kemler.....Basehor, Kan.
Walter & Nelson.....Savonburg, Kan.
Shelby Cuddy.....Parsons, Kan.
Bland & Campbell.....Courtland, Kan.
J. H. Krug.....Herkimer, Kan.
Tubbs & Thurman.....Great Bend
R. L. Phillips.....Joplin, Mo.
Fred Norton.....Carthage, Mo.
Modern Auto Co., 2210 Pestalozzi St., St. Louis

MIDDLEWEST

Moller Motor Sales Co., Quincy, is now styled Morris Adler-Moller Co., and has opened new quarters at 609 Vermont Street. The firm will distribute the Maxwell car and truck.

James T. McKinstry, Delavan, Ill., has sold his garage to William Connell who plans to enlarge the plant.

Acme Motor Truck Co., Cadillac, Mich., has opened a distributing station at Freeport, Ill., with A. L. Slusser and M. M. Ulfers in charge. A fireproof warehouse will be erected in the spring.

The E. V. Kirby Auto Co., Champaign, Ill., has opened a sales agency in the Lincoln building with L. H. Hart as manager. The concern will distribute the Ford.

The Muskegon Overland Co., Toledo, has purchased the Koebel & Bennet Auto Co., 54 West Clay Avenue, and will handle the Overland and Willys-Knight and Federal trucks.

E. A. Bowman Co., 844 Woodward Ave., Detroit, accessories jobber, has leased the adjoining building for additional stockrooms.

Ross Motor Car Co., Superior, has moved to larger quarters at the Terminal Buildings, Winter Street and Ogden Avenue.

R. D. Clark Motor Co., Oconto, Wis., has sold its business to the Oconto Falls Motor Car Co., Oconto Falls, and the two companies will be consolidated in the latter city.

Fred Wright has leased the building formerly occupied by the R. D. Clark Motor Co., Oconto, Wis.

Lastro Auto Sales Co., Athens, Ohio, is moving to larger quarters in Nelsonville, Ohio.

Manistee Tire & Repair Co., Manistee, Mich., has been purchased by Otto Schimpke and O. J. Doelle, and will be styled Michigan Tire & Repair Co.

Frank Kernltzer, Montfort, Wis., has sold his garage building to Johnrud & Chandler, and has moved his stock to Livingston, Wis. In partnership with Wesley Holmes, he has taken over the Fred Brant Motor Co. here.

Saginaw Cadillac Co., Saginaw, has moved into a new showroom and service station at 208 North Washington. J. J. Tompkins is manager.

The Wilson Garage Co., Milwaukee, has taken over the Kopmeyer garage building, 375-389 Summit Avenue, one of the largest in the Middle West.

Jensen & Anderson, Grand Rapids, Wis., Ford dealers, have leased a factory building and will convert it into an auxiliary warehouse for new and used cars.

Franz Bros., Tomah, Wis., have installed a storage battery service station and will specialize in Prest-O-Lite service, sales and repairs.

Deicher & Arndt, Plymouth, Wis., have leased a building near their garage and repairshop and will fit it up for the display, sale and service of tractors.

Marshall Auto Co., Flint, has opened with the Nash agency.

Natwick Electric Co., Grand Rapids, Wis., has established an electrical service and battery shop and will operate it as "The Electric Garage." Frank J. Natwick is general manager.

Wisconsin Motor & Machinery Co., Marshfield, Wis., dealer for the Nash, Franklin, Oakland, Hudson and Doble, has leased the Lahr Building and will remodel it for a salesroom.

Alfred Ladewig, Grandville, Mich., has purchased the stock of the Hammond Auto Co. and will conduct a general garage and salesroom.

Michigan Tire & Accessories Co., Grand Rapids, will move into the Nichols building, Monroe avenue, February 1.

Inkster Garage, Inkster, Mich., has been sold to H. McLean.

New Garages

Roemer Bros.....Hartford, Wis.
Wausau Motor Car Co.....Wausau, Wis.
Schumann Motor Co.....Cedarburg, Wis.
J. H. Spengler.....Marion, Wis.
Lake Mills Auto Co.....Lake Mills, Wis.
Maur. W. Fox & Co., Grand Boul'd, Detroit
Black Brothers.....Holly, Mich.
A. F. Nessner.....Benton Harbor, Mich.
G. W. Ehrhart.....Decatur, Ill.
Hermany Moody.....Peoria, Ill.
Frank Pumphrey.....Decatur, Ill.
E. B. Kirby Auto Co.....Champaign, Ill.
G. W. Ehrhart.....Decatur, Ill.

NORTHWEST

H. A. House, Olivia, Minn., has bought the A. L. Jansen garage.

William Saglissor, Kellogg, Minn., has sold his interest in the Kellogg garage to his partner, Charles Phillips.

William Saglissor, Plainview, Minn., has bought an interest in the Edwards garage.

Leonard Walters, Sturgis, S. D., has bought the interest of William Hall in Stolz & Hall.

F. M. Fraley, Volga, S. D., has bought the George Brown garage and will take possession March 1.

Bret Read, Conner, Mont., has leased the Conner garage.

Lee Howell, Hettinger, N. D., has bought the interest of his partner, Peter Christianson, in the Hettinger Auto Co.

Ray Wilson, Munich, N. D., has sold the Munich garage to W. A. Farrell, Langdon, N. D.

H. W. Witzel, Artesian, S. D., has bought the stock of the Jones Garage and will continue the business.

Lundquist & Larson, Graceville, Minn., have bought the Graceville garage from P. Cota.

Ed. Gray, Dillon, Mont., has bought the interest of Sam Ditty in the Ditty & Shepard Auto Co.

Jay & Alfred, Cole, S. D., have taken over the mechanical department of the Cole garage.

F. S. White, Shelby, Mont., has bought an interest in the Ford agency and supply station.

Dwight Young, Fairbury, Neb., has sold his garage to Sol. Cressman.

C. J. Channey, Waterloo, has bought an interest in the Wesp Motor Co., New Hampton, Iowa.

H. Currier, Eddyville, Iowa, has sold his garage to Henry Sisco.

H. E. Steinke, Keystone, Iowa, has bought the interest of his partner, A. Werning, in the Keystone Garage.

A. R. Garner, Des Moines, has bought the P. A. Mathre garage at Ames, Iowa.

C. M. Moats, Webster City, Iowa, has bought a garage at Duncombe, Iowa.

O. H. Larson, Butte, Neb., has bought the interest of Anton Kramer in the K. V. Garage. The firm will be styled Voss & Larson.

Larson-Krell Ignition Co., Billings, Mont., will conduct a retail and wholesale accessory and vehicle hardware business.

George A. Hunt and Clarence Hunt have bought the Billings garage at Billings, Mont.

Theodore Hermanson and Leo Seppala, Buffalo, S. D., have leased the Buffalo garage from William Johnson.

Deulen & Martin Co. and Frost Brothers Co., both of Bridgeport, Neb., have exchanged locations.

Ernest Adamson, Lynch, Neb., has bought the interest of his partner, Frank Zercher, in the Lynch garage.

Swede Rees, Pilger, Neb., has bought the garage of C. L. Miller.

Charles De Griselles, Sioux Rapids, Ia., has bought the garage of August Meyers.

R. D. Maulls, Adams, Neb., has bought the Benson garage at Sterling, Neb.

John Chadderdon has bought the garage of Lee Yutsy, Cambridge, Neb.

Floyd Holcomb, Broken Bow, Neb., has bought the garage of James Martin & Son.

Edward Whealon, Schaller, Ia., has bought the interest of I. L. Wells in the Arthur garage.

Samuel Hulsebus has bought the garage of George Rosman at Harlon, Ia.

Grampp Motor Sales Co., Davenport, has opened a new salesroom and service station, and has taken over the Holmes Motor Co. The firm distributes the Paige car and truck.

Willard Rumberg and Forest Honey, Sutton, Neb., have bought the garage of John Hokom at Ong, Neb.

New Garages

E. J. Schrack.....Alma, Neb.
Nickey Motor Co.....Kearney, Neb.
Dan Schreiber.....Plymouth, Neb.
Yohe & Menner.....Nebraska City
W. D. Mathews.....Madison, Neb.
Johnson & Doherty.....Winner, S. D.
J. F. Wheeler.....Lewis, Iowa
Snyder & Kayser Co.....Webster City, Iowa
Charles W. Walker Co.....Omaha, Neb.
R. B. Norden.....Nevada, Iowa
Curtis Kluger.....Swea City, Iowa
Jos. Vonderhaar.....West Point, Iowa
Crabb Gas Engine Co.....West Union, Iowa
Louck & Boehme.....Washington, Iowa
John Deatherage.....Oakland, Iowa

EAST

Frank O'Toole, Lynn, Mass., has opened a Gould storage battery station.

CANADA

The Ford Motor Car Co. of Canada, Ltd., will move to 1050 Homer Street, Vancouver.

The International Motors of British Columbia, Vancouver, has taken over the Central Garage and will handle the Briscoe, Hupmobile and Haynes.

Lethbridge Motors, Ltd., Lethbridge, Alta., has taken over the McLaughlin garage, formerly conducted by E. A. Adams. A. R. Barnsley will be manager.

H. B. Neilson, Vancouver, has bought the Auto Supply Co., Howe Street, from F. A. Cleland.

New Garages

Victoria Garage & Motor Co., Ltd.,
(Addition).....Moncton, N. B.
W. J. Sheridan.....Vancouver

Liberty Engine Plans Laid Bare at S. A. E. Meeting

WHAT is the United States Government doing with regard to the Liberty Airplane Engine? What are the production plans? How good is the engine? Why did not the United States adapt the best foreign design? These are some of the things that were explained at this meeting. The story below carries a message for every dealer.

NEW YORK, Jan. 11—Yesterday's winter session of the Society of Automotive Engineers was highly important from a national standpoint. For the first time complete details of the Liberty engine and the government airplane program were laid bare. Important aeronautic, motorcycle and tractor standards were adopted and also a few additional points on automobile accessory and fitting standards, notably in connection with headlight illumination and bumper location, were cleared up.

The symposium on the Liberty engine, taken part in by Col. V. E. Clark, Major J. G. Vincent and H. M. Crane of the Wright-Martin Co., was the most important part of the entire meeting.

Col. V. E. Clark spoke of the requirements of the different types of planes and showed the important work that these planes can do toward winning the

war. He told of the almost immeasurable effects upon the morale and physical resources of the enemy by night bombing operations, the use of large fleets of night bombing machines which he said would be of fundamental importance in winning the war. Col. Clark also went into the uses of the single-seated and double-seated combat and observation machines, the heavy types of bombing machines, and also told of the requirements of pilots in operating the different types.

Major J. G. Vincent spoke of the step-by-step processes by which the Liberty aircraft engine was designed. He told why it was that the entire program was put in the hands of a few men instead of being distributed among a number of factories, explaining that if the latter had been done it would have been impossible to get down to a production

basis, in spite of the fact that several good engines would no doubt have been designed. Major Vincent said that he is quite certain that no better engine could be produced, as this was designed to be from six to eight months in advance of the best European type now in use. Furthermore, it is a production engine which can be turned over to numerous factories throughout the country for manufacture.

H. M. Crane told of the manufacturing fundamentals behind the Liberty engine. Epitomizing his talk, he told how the engine was adapted to the industry instead of the industry being adapted to the engine; he also showed how the foreign engines, taken as they are, do not readily permit of American production methods. The successful production engine must be designed in sympathy with the methods of American factories.

How the Production of Liberty Planes Is Progressing

By Howard Coffin

Chairman Aircraft Production Board

“WHY did not the United States take the best foreign airplane engine and duplicate it for our planes?” everyone has been asking. “Because,” said Howard Coffin, chairman of the Aircraft Production Board, and principal speaker at the banquet of the S. A. E. at the Biltmore, “European engineers were far from being agreed on what was the best European engine.” He continued:

In fact, they were not fully satisfied with any engine they had. Moreover, the engines of European design were not adapted to American production methods.

The first model of Liberty engine built was an eight-cylinder model, but before this was put in production the demand for increased power became so insistent that a twelve-cylinder type was decided upon.

The aircraft plans agreed on after full conference with the Allied powers provided for the purchase of airplanes on

the other side to take care of American needs until July 1 of this year.

Planes Ordered Abroad

One of the first things done by the Government after the President, on July 24 last, approved the Aircraft Act with its \$640,000,000 appropriation, was to authorize General Pershing to place orders for several thousand fighting machines in allied countries. Many millions of dollars' worth of materials and machine tools have been shipped from the United States to aid foreign production.

Aircraft materials have been standardized with the Allies in detail and type. A complete co-ordination of manufacturing facilities and policies has been agreed upon between the Allied Powers.

Thousands of American mechanics are being put into actual service with the Allied forces. Trained men will be released as needed in the United States

service and their places kept filled with fresh material. The personnel for such increase is already available.

In accordance with the plans originally agreed upon with the Allied Governments, it was deemed advisable to provide for advanced training overseas adjacent to the actual theater of military operations, but so energetic has been the work of the personnel division of the Signal Corps that the training facilities were soon overcrowded, with the resultant request that early arrangements for advanced training be made in America.

To meet this change in program delivery of advanced training planes will begin this month, and within 90 days will have met requirements. The engines of foreign design for this advanced training schedule are already in quantity production in this country.

We have seen and heard much of the proposal of 100,000 airplanes to be pro-

vided by the United States within the next year. In a country where one great industry produces 1,500,000 motor cars per year the fabrication of 100,000 planes might seem easy, but actual figures based upon three years of practical experience in the war show that there are now between forty and fifty men of the auxiliary service required for each active machine at the front. If this same ratio should be adhered to in our service it would mean that 4,000,000 men would be required in our aeronautical department on foreign soil between our ports of debarkation and the fighting front.

Even though this number could be reduced by 50 per cent by increased efficiency and standardization, the number required is still staggering. Consider also the overseas transportation problem as related to material only and without reference to personnel and its maintenance. Again, the problem of proper housing behind the battle lines in Europe of such great numbers of planes as are carelessly discussed may

well be left to sober thought and planning.

Every decision of the Aircraft Board has been based upon the military policies of the front. Daily cable communication with Allied countries is maintained.

New sources of supply, flying fields, the experimental laboratory and other activities, under the direction of the board, have been purposely located west of the Allegheny Mountains, in accordance with the stated policy of the military departments to remove sources of war supply 200 miles from the sea coast, and to avoid the labor congestion which exists in all Eastern industrial centers.

Established plants of the motor car industry are being largely utilized in aircraft motor production, but not in airplane construction. In general, the statement may be made that not a single automobile factory is in any way involved in the plane building industry. The reasons for utilizing the engine building talent of the third largest of the world's industries permit no argument.

Liberty Engine Production Problems

By H. M. Crane

Chief Engineer Wright-Martin Aircraft Corp.

IN laying out a production schedule the whole industry had to be taken as it was and not in some different way. There must be many here who have done development work, and as you know, the most successful engine is the one designed to meet the factory idea and temperament. If you do not do that production is delayed.

Production with a foreign engine would never have been half what we can expect from an engine designed in this country with the knowledge of all the American factory practice. When I heard in the newspapers in the early part of the summer that an engine had been designed in 2 weeks I was very much surprised. When I had the privilege of coming closer to what had been done I found that this was only the final printing. What had occurred was a year or 2 years of development, always thinking in terms of American methods.

Can't Build Foreign Types

I have been working on a foreign engine. It was designed by the best production engineer on the other side. It is for that reason it has been so successful on the other side, and yet it contained difficulties that had to be met.

Speaking of the distance we are from the other side—we are distant in our way of thinking and we are distant in miles.

Therefore, it is difficult to copy foreign practice. As an illustration of the difficulty of this, all we need to do is to look at the Mercedes. That has been copied by many, yet no one who has copied it has reached its efficiency or usefulness. The makers who have started to copy it and who reached a

fine product have altered their processes and design very materially. That would happen to us if we had started on a foreign design. The best foreign designs are not inventions. An aviation motor must be of the simplest form and the Liberty is the embodiment of the simple idea of compactness, which makes for light weight and reliability.

The cruising radius of the plane is a matter of load, speed and plane design. It is easily up to 600 miles.

The twelve will be the only Liberty engine in production. There is no idea of building anything else at the present time.

Best Form of Ignition

The increased speed and number of cylinders make it very questionable if the magneto is the best form of ignition. Two separate sparks per cylinder must be furnished, and they must be independent in every respect so that should one go out of order the other will fire regularly. While the magneto is now questioned, there is every disposition on the part of the engineers to listen to suggestions on both types, and the ignition, as now provided, is at least as good as could be designed. The committee is going right ahead with what they have in ignition at the present time. An interesting point is that nobody has as yet offered a system which is as light as the one now in use.

Regarding weight per horsepower, the engine originally weighed 786 lbs. and delivers 400 hp. at 1625 r.p.m. Due to the strengthening of certain parts, the weight has been increased and is now 801 lbs., giving 2 lbs. to the horsepower—the weight per horsepower on the best French machines, such as the Hispano

geared type, as the engine weighs 520 lbs. and produces 220 hp. There are two compressions on the present Liberty engine, a compression ratio of 5 to 1, or 20 per cent, being used on the navy machines, and a ratio of 5.4 to 1, or 18 per cent, on the army machines. This is because the army machines do their flying at above 10,000 feet elevation and get up to this height just as soon as possible. This compression is based on the best practice abroad, although experiments are being made on higher compressions, and it is known that a 6 to 1 ratio can be provided without trouble.

Lubrication Problems Solved

For lubrication we are trying to get castor oil, but a good grade of mineral oil is quite satisfactory. The supply of castor oil has lately been increased, but there is no difficulty on the score of lubrication.

The average life of a combat machine is two months, or about 100 hours of flying and fighting. Observation machines have a slightly longer life, the average being about three months. The bombing machines have an indefinite life, generally ending their careers through wear rather than through actual damage.

Regarding spark plug trouble, it has been possible with the special design of cylinders to bring the water close to the plugs. The Liberty engine is not a hard engine, relatively speaking, as regards spark plugs, particularly as no extreme compressions are used. Carburetion is not exactly right for high altitudes. No starter is necessary on the machines now under construction, as it is impossible to stop the Liberty engine, once the machine is in the air, as it cannot be driven slowly enough to stop the engine from turning over.

Very Little Valve Trouble

Regarding the possibility of the engine with four valves per cylinder, Major Vincent stated that there is no necessity for this, as four valves are harder to cool and are apt to cool unequally. Until the lift equals one-quarter of the diameter of the valve, the full value of the valve is not obtained. There is a possibility of there being, at some future time, an engine with two inlet valves. There is no radical feature in the valve timing, as the exhaust opens 52 degrees before bottom center and the intake closes 45 degrees as to bottom center.

The ignition apparatus weighs 29 lbs., including the battery. The fuel feed is by pressure system, with a pump on the engine and a blow-off valve in the tank. The valve mechanism is operated by a rocker through a bearing, and any oil getting out must escape through this bearing, thus lubricating it. The piston clearance was at first set at .016 in., but after increasing the diameter of the valve 1/16 in., the clearance was raised to .020. The piston is straight up to the bottom of the top ring.

The engine is a dry crankcase type and the cylinder dimensions are 5 x 7.

The period of the engine is at 1200 r.p.m., and in making tests propellers are used while the power curves are taken on an electric dynamometer. Domestic ma-

terials only are employed in the manufacture. The valves are $2\frac{1}{2}$ in. in the clear with a lift of $\frac{3}{8}$ in. for the exhaust and $\frac{7}{16}$ for the intake.

How the Liberty Engine Was Conceived

By Major J. G. Vincent

Co-designer of the Liberty Engine

GO back to April or May, when the Government had the job to decide about the airplane program. Considerable time was put in going over the situation, and what was then called the Aircraft Production Board was in charge of the job.

The French and English agreed that there was nothing here that would be of value at the front. We did not have the engine they wanted at that time. It was finally decided we should get together all the best things embodied in those of the Allies and combine them. We wanted to combine all the benefits of the experimental work of the Allies, and at the same time produce manufacturing results that had been produced by the Germans, that is, cut down to the fewest possible parts. The scheme as originally laid out consisted in making a number of engines of interchanging parts, cylinders from four to twelve and possibly more, if that seemed desirable, later.

However, it was decided to first build an eight-cylinder of approximately 250 hp., but before that was completed we were asked to use the twelve-cylinder of over 300 hp. because the cry for more power was being heard. Of course, we had the men on the other side sending information. We took all this information and combined it with our own experience to produce a standardized aircraft engine.

Quantity Production Essential

We decided it was absolutely necessary to design this engine and have the Government follow it, though so that manufacturers could produce in quantities. The automobile engineers co-operated on this job. It was only on the 4th of June that Major Hall and I were given the order to produce ten sample engines. We went back to Detroit and got out rough detail drawings.

The first engine was produced in 21 days because we got everybody's co-operation. That shows what can be done through co-operation, and we can only do things with co-operation. We do know how to produce in large quantities, and produce them good if we have a definite program. The first, built in 21 days, was an eight-cylinder.

You can realize the importance of having a standardized engine. If you have two planes identical save for the engine, it is almost impossible to take out one and put in another without redesigning the plane. We took the cylinders and valve operating mechanism and the crankcase and crankshaft construction, connecting rod, the generator, intake

head—so long as it was good it made no difference.

When we finished the twelve-cylinder engine we put it to a test and made not a single adjustment through a 50-hr. run. We did not put that through the 50-hr. at maximum horsepower on the ground, because the engine was designed not to be run open on the ground. It developed a horsepower to 2 lbs. of engine weight. Since that time we have found out that it will run for an indefinite period wide open on the ground. It develops 400 hp.

Different Types of Military Airplanes

By Col. V. E. Clark

In Charge of Military Airplane Development

IN this war the Allies have a greater number of types than the enemy. One reason for this is that the Allies have listened more to the demands of the pilots using the machines. The Americans are trying to select those types that render themselves readily to standardized production.

The various military types can be divided into airplanes of observation, airplanes of combat and airplanes of destruction. None are new—each type has its different functions.

Airplanes of observation act in connection with field artillery, act with the infantry and keep in touch with lines of communication and keep commanders in touch with movements; take photographs; make maps beyond the lines and dive down and inflict damage on trenches by machine guns. It is hard to draw a line between the types. The airplanes of observation may carry two or three men.

Mammoth French Machines

The latest development in France is the army observation machine for three men and the engine is 500 hp. Airplanes of combat and pursuit are usually single or two-seater. Each, of course, has its advantages. The development of more powerful engines will mitigate against the single-seater, and eventually it may entirely be replaced by the two-seater.

The airplanes which do the real damage are the third type, those of destruction. Of course a very brilliant fellow can go up and bring down ten of the enemy, but bombing airplanes will inflict the real damage. The bombers are divided into day and night machines. They are entirely different.

The day bomber carries two men. They bomb headquarters, ammunition plants,

The Aircraft Production Board was not asleep. In the meantime very large facilities were being provided for manufacturing. The equipment for manufacturing steel cylinders is a very large proposition. Everything was taken up and carefully studied. Each factory will produce the same thing and have interchangeable parts as far as possible.

There is another thing that is going to be a great benefit. We have been co-operating with the automobile engineers for years. If we had brought in different aircraft engines from abroad and distributed them around the plants it would have resulted in great jealousy, each keeping his own knowledge to himself. The most important of all is with the standardized engine you get the benefit of everybody's co-operation. We have nothing but twelves in production because it is the one with the most power. With it we get over 400 hp., and that is all we know how to use efficiently to-day.

factories, trenches and warehouses. They do photographing also. They must be able to protect themselves from all possible aircraft.

It is not economical to send trained pilots a great distance beyond the lines unless the machine carries 600 to 800 lbs. of bombing material. It should carry two or three machine guns. Day bombing will be done in the future in formation with as many machines as can be flown without any particular risk of collision. These will be in multiples of five. The German Gotha has two 260-hp. Mercedes engines. These types have bombed London during the day.

Night Bombing Planes

The night bombing will inflict real damage. The night bomber is different from the day bomber. It is not necessary to be fast. The primary requirement is good bombing capacity. Two Liberty engines carrying three or four men should be able to carry roughly at least one ton of bombs. Two pilots are carried, the chief pilot and the bomber. Machines that have a ceiling of 10,000 ft. running 85 m.p.h. are ample. Greater speed means more power or less carrying capacity. In the case of a machine with two Liberty engines, for every 16 miles' range 100 lbs. of bombs must be sacrificed.

The number of night bombing airplanes built and supplied should depend solely upon the number of pilots available. It depends upon the work they have to perform. They cannot be put closer than 1000 yards without tangling the wireless communications. The number built depends upon the strength of the army. There is no limit on bombing

machines. The number will also probably depend on steamship space for transportation and possibly upon the appropriation.

Each airplane carries $1\frac{1}{2}$ tons of bombs. If we could send out 500 machines every third night, each dropping 500 bombs on the factory towns, there would not be much war after that. That would wreck all railroads, and telephone and telegraph lines would then be destroyed.

Expect Slight Decrease In Gasoline Production

A DECREASE in the supply of fuel for home consumption during the continuation of the war is the prospect for the immediate future. This is the opinion of Dr. E. W. Dean, of the Bureau of Mines, expressed to the S. A. E. Nor after the war closes will the gasoline supply situation be relieved according to the Government expert. Some of the points made by Dr. Dean follow:

The term "gasoline" is generally recognized to be rather indefinite and to define a product applied to a certain use rather than a product of any definite property. The best definition of gasoline at present seems to be "a liquid fuel that will start an automobile engine and keep it running after it is going." Any definition that deals with particular and definite performance usually gets in trouble.

The present refining practice includes three major methods of producing gasoline. One is the ordinary refinery process of distillation from the crude petroleum. The second method is the cracking process. The third is from natural gas. Large quantities of valuable motor fuel are extracted from certain varieties of natural gas either by processes of compression and condensation or by washing with heavier oils.

How Gasolines Differ

These types of products have certain characteristic properties. The straight refinery gasoline is usually composed of hydro-carbons that are decidedly inactive when subjected to chemical treatment. The physical properties of straight refinery gasolines are widely variable. They depend entirely or practically on the method used in refining gasoline. The most important property from the point of internal combustion engineering is that of volatility. All methods used vary somewhat, but in general they are similar and furnish satisfactory basis of comparison.

The prospect for the immediate future during the continuation of the war seems to be that there will be a decrease in the supply for home consumption. It is conservatively estimated that during the present year the military activities will require at least one-fifth of the production, and that it is bound to have some effect on the market. The military gasoline is likely to have higher volatility, and for that reason the home market is likely to have to make up the difference and use less volatile gasoline.

The prospect for the general future is not, however, one which the successful termination of the war promises relief. The supply of crude petroleum is estimated not to last more than another generation and the continuation of actual shortage may result, and it is necessary to prevent this.

One of the possible sources of motor fuel for the future is alcohol, but the price of gasoline will have to increase and the price of alcohol decrease before alcohol can successfully compete. Another possible source is through coal tar distillates, benzol and others. These do not seem to promise a large source of supply.

In the future it appears that all producers in aiding to solve this problem must procure more motor fuel from the petroleum, and designers of engines must work towards higher standards of fuel economy. A certain increase in supply of motor fuel may be counted on in the coal industry.

Several New Standards

Recommended by S.A.E.

IN the Standards Committee work, aeronautic considerations occupied far more than half of the time devoted to the meeting. A list of the subjects upon which recommended practices were fixed follows: Dopes—Cellulose Acetate, Cellulose Nitrate, Spar Varnish Specification, Round Steel Wire, Non-Flexible Steel Wire Cable of various sizes, Flexible Steel Wire and Extra Flexible Steel Wire of various sizes, Reels for Cable, Tachometer Drives, Rubber Hose for Gasoline of different types, Plain Hexagon Nuts, Ball Hexagon Nuts, Castle Hexagon Nuts, Ball Hexagon Head Bolts, Plain Hexagon Head Bolts, Rubber Hose Clamps and Fittings, Turnbuckles, Shackles, Clip Ends, Clevis Pins, Engine Testing Form both factory and laboratory, Spark Plugs, Bevel Washers.

Motorcycle standards considered and adopted as recommended practice dealt with spark control, throttle control, kick starters, clutch pedal, brake pedal, chains, oil and grease cups, cylinder displacements, gearshift, carrying capacity, tires, magneto dimensions, headlamp mounting lugs, fuel and lubrication pipe fittings, spoke and nipples, wheel and rim specifications.

New Headlamp Standard

The divisions pertaining to motor car practice which reported were those concerned with the details of roller chains, data sheet, nomenclature, headlamp illumination, headlamp bulbs and miscellaneous fittings. Of most interest to the dealer is a recommendation on headlamps which reads:

"The headlamps shall be so arranged that no portion of the direct reflected beam cone of light, when measured 75 ft. ahead of the headlamps, shall rise above 42 in. from the level surface of the road on which the vehicle stands, under any condition of loading; nor shall any portion of the direct reflected beam cone of

light rise, beyond 75 ft. distance, more than 12 in. above the center of the headlamp."

In the tractor division, the recommended practices passed by the meeting cover fuel and lubrication pipe lines, magneto mountings and a standard form of tractor specification sheet. The fuel and lubrication pipe lines are specified as 5/16 outside diameter tubing and 1/4 in. pipe thread compression type couplings. The magneto mountings conform, for impulse couplings, to the N. G. E. A. standard practice.

Standard settings for bumpers were also provided as follows:

Table of Standard Bumper Heights and Dimensions

	Front	Rear
Height from center of face to ground.	21	22
Over-all length.....	Between 59 and 60	Between 59 and 60
Bumper face	Flat	Flat
Vertical depth bumper bar min.....	2	2 1/2
Dimensions in inches.		

Kettering Made S. A. E. President

NEW YORK, Jan. 10—Chas. F. Kettering, vice-president of the Dayton Engineering Laboratories Co., is the president-elect of the Society of Automotive Engineers.

Kettering has been connected with the Dayton Engineering Laboratories Co. since 1909. Prior to that he was engineer in charge of development work on electric apparatus for the National Cash Register Co. He was graduated from Ohio State University in 1904.

David Beecroft, who is directing editor of the Class Journal Co., and has been active in society affairs for a number of years, is first vice-president. The complete slate follows:

President—Chas. F. Kettering, vice-president Dayton Engineering Laboratories Co.

First vice-president—David Beecroft, directing editor Class Journal Co.

Second vice-president—C. C. Hinkley, president and general manager Hinkley Motors Corp., representing motor car engineering.

Second vice-president—Geo. H. Houston, representing aviation engineering.

Second vice-president—Fred Glover, Emerson-Brantingham Co., representing tractor engineering.

Second vice-president—Henry R. Sutphen, vice-president Submarine Boat Corp., representing marine engineering.

Second vice-president—H. R. Brate, representing stationary internal combustion engineering.

Secretary-General Manager—Coker F. Clarkson.

Treasurer—Chas. B. Whittelsey, vice-president Hartford Rubber Works.

Councillors 1918

B. B. Bachman, engineer Autocar Co., Ardmore.

H. L. Horning, engineer Waukesha Motor Co., Waukesha, and chairman Automotive Section of the War Industries Board.

C. W. McKinley, chief engineer, Willys-Overland Co.

George W. Dunham, past president.

Russell Huff, past president.

Jobbers Tackle Problem of Dealer and 1918 Business

Believe Big Future in Accessories Lies Just Ahead and Plan to Help Dealers Have Prosperous Year

NEW YORK, Jan. 15—The salesmen of jobbers should be made into preachers of the gospel of business and at this time should be telling to the entire trade that there is a big opportunity coming for the sale of accessories and supplies, was stated by O. R. MacDonald, of the Gibson company, Indianapolis, in addressing the National Association of Jobbers here yesterday afternoon.

The association's annual convention is in session at the Hotel Astor, and is attended by 200 or 300 men from all States.

"A lessening in the sale and production of cars is conceded by all," MacDonald stated. "The cars that will be sold are those which are to serve a useful purpose—and this includes a big percentage of normal output. We know that the four big makers of cars are handling big government contracts, and we also know that they are nevertheless producing cars at near a normal figure.

"When demands for government work have been given to the Automobile Industries Committee at Washington the committee has passed the demand on and made capacity in our factories in excess of government requirements. We all know now that there is no shortage of material.

Big Demand

"There is going to be an abnormal demand for used cars; old cars are to be kept running. All of this is going to bring about the biggest year the accessory trade has ever known.

"But despite all these facts the dealers are apprehensive. They feel uncertain and nervous. They are disturbed by the many rumors that fly about. We know the facts in the situation, although perhaps our stories might vary. I believe it is up to the jobbers to get their facts into a standardized story and present it to the dealers so that their fears may be allayed and they may prepare for the big business that is coming.

"Furthermore, I believe we should advocate that dealers and garagemen take on the agencies for trucks and tractors. This perhaps does not seem to concern us, but it would react to our own benefit. This trade so far is like the old-fashioned three-legged milk stool. If the cow switched her tail it might be upset. With truck and tractor agencies in combination with passenger car and accessory businesses the business of the dealer would be well rounded and more stable. I believe the end of the war will see for the first time a full rounded out business for the dealer. It is up to us to educate our salesmen to the point where they can pass the gospel of sound business and better methods along to the dealer

and enable him to help him save himself."

Some members were unable to make the convention yesterday because of disrupted train schedules.

The question of terms was discussed with the majority in favor of not post-dating bills. The trade acceptance was mentioned and will be discussed more in detail before the end of the session.

One service star was hung out on a small silk flag in honor of ex-President Sidney B. Dean, of Nicols, Dean & Gregg, St. Paul, who is now in France.

A census of a committee meeting of 16 men disclosed 347 men in the service. On the same basis of computation this would mean nearly 8000 for the total membership.

Prayer for President

The convention, during the opening address of President Charles E. Faeth, stood a moment in silent prayer for President Wilson.

President Faeth said there must be united action by the people at home, and that business men should do their duty by the country and give heed to the welfare of their businesses.

Commissioner Webster reported that a demurrer has been filed in the Sherman law case against the association, and that it should be argued between now and April or later. He mentioned the changed attitude of the government in the Sherman law cases before the Supreme Court.

In connection with the dealer association work by State vice-presidents Com-

missioner Webster said such organization effort was a "wise and judicious investment." He urged jobbers to assist dealers in adopting better accounting and sales methods in order that the whole trade might be benefited, both jobber and dealer.

Elimination of waste was urged by the commissioner.

Instead of buying an ambulance, for which \$2,000 was appropriated some time ago, the committee in charge of this fund used it at the suggestion of the Red Cross to buy food and medicinal supplies for Italian refugees.

It was reported that the credit department has collected \$92,000 for members. Telegraphic code books to the value of \$1,902 have been sold. There is \$16,777 in the bank and \$31,000 in bonds, making a total balance of \$47,777 in the association purse, not counting the defense fund.

Separate meetings of the jobbers and manufacturers were held yesterday afternoon. Problems of particular interest to each branch were discussed. The jobbers talked over the cost of doing business, the relation of discounts to overhead and the probable effect of new conditions. Freight conditions came in for a share. One Dayton jobber told of two carloads of tires that were six weeks in going from Racine, Wis., to Dayton, and of a shipment of spark plugs that were six weeks in going a distance of 150 miles with no transfers, and that it took five days to get them out of the yards.

Freight Very Bad

Another jobber said it took a load of batteries 14 weeks to go from Buffalo to New York. Another jobber said it took him 29 days to get a load of anti-freeze out of the Dayton yards, and that meantime the weather went below zero.

The jobbers in discussion favored the use of literature by manufacturers that would fit a No. 6 envelope, so that jobbers might mail it out without extra expense or difficulty.

There was a lengthy discussion of whether the tire business pays. Some said it did and some said it didn't.

The jobbers' association voted to hold its next meeting at Hot Springs, Va., June 5-12. There was a strong sentiment in favor of Atlanta, which withdrew when Hot Springs seemed more desirable because of its outdoor facilities.

Chairman Stanley Roberts, of the Committee on Assisting the Trade, showed by stereopticon slides what the committee is doing in advertising and distributing propaganda for better business among dealers. A vote of thanks

IF your copy of MOTOR WORLD does not reach you on the day it usually arrives, wait a day or two before writing about it. It is on the way. These days the railroads are having a hard time and finding it almost impossible to adhere to schedules because of the extraordinary amount of freight which must be handled. Even the United States mails are delayed. The post offices have had hundreds of expert sorters enlist and poor help has taken their places. So wait a few days before you write us that your copy has not been received.—MOTOR WORLD.

was extended to the trade papers for their co-operation.

The association decided to open an information exchange and bulletin on surplus stocks, so that jobbers may be informed as to what others have for sale.

It was voted to take out a membership in the National Association of Credit Men, whose assistant secretary, W. W. Orr, explained the trade acceptance. There were numerous questions on the trade acceptance, but no definite action was taken as to its desirability. Many members displayed unfamiliarity with its workings and regard it as quite "new." Several members who have used it spoke emphatically in favor of it.

H. H. Brenner, of Dayton, told how organization work among dealers is

being done in Ohio, and cited the advantages of an organization to the dealer and jobber. The Ohio jobbers have pledged about \$15,000 to this movement.

When a paper by C. L. Elyea, Atlanta, who was absent, was read, recommending separate organizations for jobbers and manufacturers, the majority present voted in favor of the present plan under which the organization is operating, which is a combination.

H. F. Brownell, Sioux Falls, S. D., aroused the enthusiasm of the members with a statement as to why America is at war, and how and why her business men will be the factor that will win the war.

Officers will be elected to-morrow.

Detroit Expects Good Spring Trade

Despite Coal Shortage and Freight Tie-Up There Is a Strong Undertone of Optimism—Dealers Work to Increase Efficiency

DETROIT, Jan. 10—The automobile industry has for the week moved to New York. The coal shortage is still acute, freight car congestion bad, and manufacturers having Government work are concentrating in placing that work in production. There is a strong undertone that indicates an increasing confidence in business conditions, and predictions for particularly good business in the spring and summer.

Particularly is this reflected in the attitude of the local motor car dealers. Detroit dealers are fortunate in being both close to the factories and the public, and in this respect is quicker to sense coming changes in business conditions. A canvass of the larger local dealers shows a renewed confidence on the part of the public. This as yet has not materially affected sales, but the number of unsolicited inquiries is increasing, and the live prospects for spring and summer business are large. And the dealers have already passed through crises that in normal times would have been considered disastrous—and in each case have weathered the storm. They are simply revamping their organizations to meet the new conditions, and feel that nothing more serious can happen than has happened.

Money Starts to Circulate

Guy Ellis, of the L. J. Robinson Co., Chalmers and Maxwell distributor, explains the present quietness of the trade, and his confidence in the future as due to the fact that much of the ready money in the country is tied up in the Government at present. As soon as munition manufacture starts on a large scale, this money will be started on its circulation cycle. And from then on the dealer will receive his proportional share.

At the start of the war, the ready money was largely in the hands of the rich. Through the Liberty loans this was turned over to the Government. It is now just beginning to be released to the manufacturer, and from now on the

workmen and retailers will have more ready money than ever before.

To date this cycle explains business conditions in general. The moneyed people have practically dropped out of the car market. In the first place, much of their money is tied up in stocks and bonds; then they have subscribed heavily to the Liberty loans, or are investing. Limousine buyers are either making the old car do, or are buying a more modest car to meet their needs. And the fly-by-night capitalist, with his \$5,000 limousine, apartment and nothing much else, is eliminated. But once the money passes through the hands of the manufacturer, into the hands of the workmen, it will be released and distributed through the regular channels of trade.

Though the Detroit dealers are located close to the source of supply, and do not have to store cars as much as dealers in more remote parts, many are to-day storing cars in anticipation of the coming business. Some are storing from 100 to 150 cars, and this is a large number for this city.

Plenty of Used Cars

In most instances the number of used cars on hand is large, but the dealers as a whole are handling the situation carefully. It is to-day difficult to sell cars on anything but a time payment basis, and in most cases a used car is taken in trade. In general the conditions are worse in this respect than last year, and the attitude of the dealers varies. Some state that the demand for used cars will be exceptionally active, and others fear that the reverse will be true. But it is certain that a good used car, taken in on a fair basis, and sold at a correspondingly fair price, will find ready sale.

Used-car dealers report a marked increase in business in the past two weeks—an increase that has always occurred at this time in the past. While in the case of new cars prospects desire to wait until the automobile shows before pur-

chasing, such is not the case in used cars. Hence the indications of better business are felt in the used car field first.

How Dealers Increase Efficiency

The following are examples that will show what the dealers are doing to increase the efficiency of their sales. Thomas J. Doyle, Dodge Brothers distributor, is putting his salesmen through a course of intensive salesmanship. A catechism has been prepared covering every possible sales argument, and placing carefully worded replies into the mouth of the salesman, so that each condition may be handled diplomatically. And Doyle used the zone system, whereby each salesman has a particular part of the city, and is responsible for that part.

Bemb-Robinson, Hudson distributor, is sending circular letters to every car owner in the territory, and the L. J. Robinson Co. has made a canvass of the entire city. Throughout the trade the dealers are making the step from vending cars to actually selling them.

The salesman problem seems to be exceptionally bad to-day. Not that it is impossible to get men—such is not the case. The problem is to get the type of man that makes a good salesman. These are usually the younger men, aggressive, and willing to take a chance. These men are either in the army or else already employed. The same is true in the service departments, and it is possible that many older men will again come into their own.

This in general sums up the business conditions locally, and in many respects the conditions throughout the country, particularly in those parts supplying material required in the war. At present business is quiet, the prospects for the future are not phenomenal, but the outlook better than at any time since the war started. The automobile business is getting on a war basis, and as an essential part of the country will survive, stronger and better because of the difficulties solved.

Gotfredson Heads Saxon

DETROIT, Jan. 14—Benjamin Gotfredson was elected president of the Saxon Motor Corp. at a meeting of the board of directors held in New York this week. Gotfredson will take the place formerly occupied by Harry W. Ford. He is president and organizer of the American Auto Trimming Co., Detroit.

Women Truck Drivers for Washington

WASHINGTON, Jan. 14—The Depot Quartermaster of the War Department has asked the Civil Service Commission to provide a list of women eligible to drive motor trucks. The Department will use one hundred women motor truck drivers on the streets of Washington at \$70 per month to start. None of the drivers will be sent abroad.

Picard Gives Up His Retail Supply Store

Old-time Accessory House to Devote Entire Time to Wholesaling of Motor Car Products

NEW YORK, Jan. 10—A. J. Picard & Co., Inc., which started business in a small way at 1720 Broadway, New York City, many years ago, which has grown to be one of the largest automobile accessory jobbing and distributing houses in the United States, has discontinued its retail store at 1700 Broadway. The business in future will be exclusively wholesale, and will be handled in the new building at Sixty-first Street and Broadway.

A. J. Picard, head of the company, has been identified with the automobile industry for 20 years, and is the dean of the dealers. He at one time was the representative for the Darracq, when the motor car was looked upon as a curiosity, and drove one of the first road races ever held in this country. He has remained in the business continuously, and has seen it grow to be the third largest manufacturing industry in America.

The company covers all of the eastern United States, with a sales force of twenty-four men, handling a complete line of motor car accessories, serving several thousand dealers. The company is also eastern distributor of the Stromberg carbureter, Gabriel snubber, Apollo Rubber Co., besides being national distributors of the Genemotor generator, starting and lighting system for Ford cars, manufactured by the General Electric Co.

Hot Spot Demonstration

NEW YORK, Jan. 14—A demonstration showing the value of the Chalmers "Hot Spot" manifold was made Jan. 8 by having one of the touring cars stand for 15 hours on the street near the Grand Central Palace under the observation of an official observer. The motor was stopped for that period, during which thermometers showed the temperature to average below 30 deg. Fahr. all the time. At 10:30 at night, after the 15-hour stop, the motor was officially started. It required 8 seconds with a starter before the first explosion occurred. After this there were one or two stops, when the starter had to be again used, but 41 seconds after the first attempt the motor took hold and began accelerating.

Cassidy to Sell Twombly Pump

NEW YORK, Jan. 14—The Edward A. Cassidy Co. will be the sales representative for the Auto Pedal Pump Co., New York, and will sell the Twombly tire-foot-pump.

No G. M.-Chevrolet Merger

NEW YORK, Jan. 14—Plans for merging the Chevrolet and General Motors companies were again pigeon-holed

after a joint directors' meeting yesterday. Both companies have declared a 3 per cent dividend to stockholders as of Jan. 18, the dividend being payable Feb. 1. This is a regular dividend. Directors of both companies stated that there is no immediate intention to consolidate.

Champion Ignition Develops A. C.-Baldwin Speedometer

Will Produce Magnetic Type Named for Albert Champion and Russell Baldwin

NEW YORK, Jan. 14—A new speedometer has been developed, known as the A.C.-Baldwin, which is to be made by the Champion Ignition Co., Flint, Mich. It is a magnetic type, which has been under development for over 2 years and has been tested out very extensively. It will be manufactured at the Champion spark plug factory, the plans being to erect new buildings for its manufacture. Production will not start for some months. The speedometer takes its name from the initials of Albert Champion, coupled with the name of Russell Baldwin, who developed the instrument. Mr. Baldwin was for years connected with the Stewart Speedometer Corp.

Parke Heads Olympian

PONTIAC, Jan. 11—The following officers and directors were elected for the Olympian Motors Co. at the annual meeting of stockholders held Jan. 8: President, Fred K. Parke; vice-president and treasurer, William Passmore; secretary, C. E. Callender; production manager, L. P. Helm; director of sales and advertising, St. Clair Couzens.

New Truck Sales Company for Cleveland

CLEVELAND, Jan. 12—The Diamond T. Cleveland Truck Co. has been incorporated with a capital of \$20,000 to sell motor trucks. The incorporators are J. A. Fenner, C. L. Stocker, C. C. Young, A. M. Lovel and F. W. Santon.

King Prices Advanced

DETROIT, Jan. 14—The following are the prices on the new models manufactured by the King Motor Car Co.:

Model	Old Price	New Price
7-passenger touring	\$1,650	\$2,150
4-passenger Foursome	1,700	2,350
3-passenger roadster	1,585	2,150
7-passenger convertible sedan	2,300	2,950

Wire wheels are extra on all models except the Foursome, and this is regularly equipped with wire wheels and 32 x 4½ cord tires.

Show Brings Changes Along Gotham's Row

Holmes Gets Representation—Sanders Takes Case and Silver Drops the Dort

NEW YORK, Jan. 15—Several changes have been made along the New York motor row with the coming of 1918.

The Holmes Motor Car Co. of New York has been formed to handle the new Holmes car, made by Arthur Holmes, formerly engineer for the Franklin Automobile Co., Syracuse. The sales manager of the new agency is Frederick K. Jones, formerly with the Franklin agency here. Salesrooms are at 1848 Broadway.

The Dort agency, formerly handled by the C. T. Silver Motor Co., has passed to a new dealer, F. W. Wright, Inc., 225 West 57th Street.

The H. A. Sanders Motors Corp., 1876 Broadway, has taken the Case agency.

Brooklyn Company to Handle Marmon

BROOKLYN, Jan. 14—The Marmon Long Island Co., Inc., has been organized to handle the Brooklyn sales of the Marmon. Headquarters will be opened at 1416 Bedford Avenue shortly. The president of the new company is T. B. Van Alstyne, who is also president of the Marmon Automobile Co. of New York, Inc., and Motor Export, Ltd. F. G. Carrie, until last year general manager of the Nordyke & Marmon Co.'s Eastern interests, and now vice-president and general manager of the New York Marmon branch, is vice-president of the Brooklyn concern. Gilbert E. Rodgers has been elected treasurer, and A. G. Perretz secretary and general manager.

Povasco Wheels on 128 Cars and Trucks

POUGHKEEPSIE, N. Y., Jan. 14—The Pouvaillsmith Corp. put its factory on a 24-hour basis, beginning Jan. 10. This was necessitated by the volume of orders for Povasco steering wheels, which will be standard equipment on 128 makes of passenger cars and trucks. Two substantial additions to the factory have recently been completed and are now in work, and these, with the installation of new machinery and equipment in the main plant, have more than doubled the company's capacity.

Povasco wheels have been accepted by the Federal authorities for use on the army trucks.

Plan 1500 Famous Trucks in 1918

ST. JOSEPH, MICH., Jan. 14—The Famous Truck Co. plans the production of 1500 trucks during the coming year, and it is stated that all these are at present contracted for.

Shall Canada Out-Courage America?—Read page 8
Go to the Chicago Show

The Week on the Show Circuit

OMAHA, NEB., Jan. 14—Sixty different dealers, with fully 100 makes of motor cars, will occupy space at the thirteenth annual automobile show to be held in Omaha Feb. 25 to March 2. The list comprises a large increase over last year's exhibitors, and the show will undoubtedly be the biggest ever staged here. The show will be put on as usual in the municipal auditorium, to which an annex will be built, as was done last year. Clarke G. Powell is in charge, also as usual.

In answer to a faint objection raised to the holding of a show this year, it was mentioned that Omaha's automobile business this year was \$39,814,157 as against \$25,660,134 in 1916, and that accessory business in 1917 was \$7,713,873 as compared with \$4,347,000 in 1916, while the number of commercial cars handled in this territory has been doubled in this period.

Baltimore Getting Ready

BALTIMORE, Jan. 14—Drawings for Baltimore's Automobile Show, which will open at the Fifth Regiment Armory on Jan. 22 and continue to the 26th inclusive, and which will be held under the auspices of the Baltimore Automobile Dealers' Association and the Automobile Club of Maryland, show the following firms represented:

Westcott Motor Sales Co., Westcott; Rice Motors Co., Jeffery and Simplex; Locomobile Co. of America, Locomobile; Blair Motor Co., Saxon; Keller Sales Co., Paterson; Central Auto Co., Empire; Stuart Auto Co., Hupmobile; Auto Sales & Service Corp., Elcar; Sterrett & Flemming, Detroit-Electric; Motor Sales Mfg. Co., Scripps-Booth and National; Parkway Garage, Auburn; Glide Motor Co., Glide; Auto Sales Co., Oldsmobile; Seltz Auto Co., Velle Schall-Crouch Auto Co., Paige; Lambert Auto Co., Hudson; H. S. Block, Chandler; Ellason Bros. Motor Co., Mitchell; Star Motor Co., Bour-Davis and Grant; White Co., White; Olympian Motor Sales Co., Olympia; Chevrolet Motor Co., Chevrolet; Zell Motor Co., Chalmers and Peerless; Ford Dealers' Association, Ford; Neely and Ensor Auto Co., Cole 8; Winton Co., Winton; Motor Car Co., Overland and Willys-Knight; Mar-Del Mobile Co., Packard; Walter Scott, Marmion; Reinhard Motor Car Co., Oakland; Foss-Hughes Co., Pierce-Arrow; Standard Eight Co., Standard 8; Union Motor Car Co., Maxwell; Franklin Motor Co., Franklin; Standard Motor Co., Cadillac; United Auto Sales Co., Studebaker; Eastwick Motor Co., Dodge; Howell Motor Co., Reo and Apperson; Beam Motor Car Co., Premier; Hummer Auto Co.

Orman to Manage Indianapolis Show

INDIANAPOLIS, Jan. 6—John B. Orman, who has managed several automobile shows in Indianapolis, was chosen by the Indianapolis Automobile Trade

Omaha Will Need Two Buildings— Baltimore Getting Ready—Orman to Manage Indianapolis — Savannah Expects Show

Association to conduct the 1918 show, which will be started Feb. 25. The show will be held in the new plant of the Diamond Chain & Mfg. Co.

Savannah May Hold Spring Show

SAVANNAH, GA., Jan. 13—Plans are now on foot which seem to assure that Savannah will have what her automobile dealers have long desired, a first-class show. It will in all probability be held in the spring in the newly completed \$300,000 Municipal Auditorium.

Here's a New Dodge

OMAHA, Jan. 14—Do they do it in the East? They do here. They put the risk of bootlegging upon the dealer in automobiles.

Nebraska went dry in May, 1917. The Reed amendment to the United States Constitution, forbidding transportation of liquor into dry States, became effective July 1. Among the provisions of the Reed amendment was one that the vehicle in which liquor is found to be transported into a dry State is forfeit and subject to sale by the authorities in the city or county where the arrest is made.

It looked like a big risk to the bootleggers at first, but they soon got round it.

The plan now is to buy an automobile, preferably one of the medium grade cars, with fair carrying capacity and not too high a price, making a small payment down and giving paper for the balance. Then, when the officers seize the car on finding it employed in liquor transportation, it is still the property of the dealer, and upon him falls the loss when the car is sold at auction.

Spokane Forms Association

SPOKANE, WASH., Jan. 12—The dealers of this city have formed an association. A banker, Fred Alsbaugh, has been made treasurer, and a secretary is to be selected later by a committee named for that purpose. The other officers are: President, Harry Twitchell, John Doran Co.; first vice-president, E. C. Finlay, Eldridge-Buick Co.; second vice-president, Guy E. Riegel, Seven-Seven Co.

Executive Committee—H. M. Eastman, Eastman Motor Car Co.; John Doran, John Doran Co.; C. P. Brewer, Brewer Motor Car Co.; Floyd J. Logan, Floyd J.

Logan Co.; R. F. Blackwell, Fosdick Auto Co.; W. H. Barnes, T. J. Young, Inc.; D. F. Bacheller, W. C. Garbe Motors Co. Trustees—F. A. Williams, F. A. Williams Co.; H. Berg, Automobile Clearing House; W. W. Trumbull, Spokane Auto Co., and R. L. Strickle, Oldsmobile Co.

Cedar Rapids Show Coming Well

CEDAR RAPIDS, IOWA, Jan. 12—The eighth annual show of the Cedar Rapids Auto Trade Association will be held at the Auditorium March 11 to 16. Two floors will be used, the lower being given over entirely to passenger cars and the upper to trucks and accessories. Nearly all the available space already has been sold.

Big Winnipeg Convention

WINNIPEG, Jan. 14—The Manitoba Motor League is arranging a big convention to take place in Winnipeg Feb. 20 and has invited the co-operation of the Trade Association. Representatives of all the four western provinces will be in attendance and several prominent members of the provincial governments have promised to speak on matters affecting the motorist.

Two New Staybestos Branches

PHILADELPHIA, Jan. 14—The Staybestos Mfg. Co. has opened an office in the Kerr Building, Detroit, under the management of W. C. D. Comb, Jr., and another at 608 South Dearborn Street, Chicago, with Edwin E. Coith in charge.

To Have Gasoline Administrator

WASHINGTON, Jan. 10—In addition to the administrators of food and fuel there is now to be an administrator of oil and gasoline. He will operate under Director Garfield of the fuel administration.

During the early stages of control the oil industry will be allowed to continue on its present basis without interference that would not be supported by full information on its position. The initial stages of control will deal almost exclusively with the problems of facilitating distribution and promoting conservation measures.

Auto Body to Increase Production

LANSING, Jan. 14—The Auto Body Co. will manufacture 75 additional bodies daily, beginning Feb. 1. The company has received an order from the Scripps-Booth Corp., Detroit, for 12,000 bodies, and work on this contract will be started on that date. At present the production amounts to 300 bodies daily, of which 100 are sent to the Olds Motor Works.

Motor Trucks Will Help Win the War

Service to the Government Called First Great Need at
N.A.C.C. Truck Makers' Convention—Truck Must
Be Looked On in Light of a Real Necessity

THE keynote of the Motor Truck Manufacturers' Convention held by the National Automobile Chamber of Commerce last week was service to the government. "The automobile industry is more interested in having democracy as usual after the war than it is in having business as usual now," said Hugh Chalmers, and that remark epitomized the meeting.

More than 100 of the most prominent truck makers of the country heard H. L. Horning, chairman of the Automotive Products Section of the War Industries Board, say: "The motor truck is a national necessity."

The great problem now before the motor truck industry is to prove the feasibility and practicability of employing the motor truck to relieve the acute railroad congestion which is bound to increase as our rolling stock wears out through lack of proper care and as our Government's preparation increases to keep our army of one million men supplied 3000 miles from their base.

Major Edward Orton, Jr., Q. M. C., U. S. A., told of a great work which the Government is now doing in driving its standardized war trucks and other trucks still being shipped on previous orders overland from their points of assembly to the seaboard. He pointed out that the most important effects of these overland drive-aways of war trucks are not in the 15,000 freight cars saved for other needs or for the 100,000 tons of freight which they will carry, but instead are the great

educational value which these long convoys of trucks will have upon the people of America to make them wake up to the fact that we are really at war.

These trucks will be the first physical contact which a large proportion of our citizenship has had with the materials of the war. These war trucks will be one of the first object lessons of the war and of the great preparations which our officials in Washington are making to assure a victory for our arms.

The second great benefit of these drive-aways will be the bringing to the citizenship of the great necessity for overland motor routes and roadways capable of withstanding motor truck traffic and of roads which actually lead somewhere, and do not branch out to obscure points as had been caused by the individual road-building programs of our several states.

The Lesson of the War Trucks

This need has long been in existence, but it will be the lesson taught by these war trucks that will bring it to the fore and result in the great development of our national highways. These great drive-aways of our 30,000 or more war trucks will have a bigger immediate military advantage than a commercial one. This will be in the training of the great personnel of truck drivers, truck masters and mechanicians required to keep our trucks in motion.

He briefly outlined the many months of study which were necessary before the first drive-away was successfully accomplished. He told of how engineering reports on the roads had to be secured; how routes had to be selected; how road maps had to be secured from the topographical departments

of the several states through which the route led; of building gaps in the proposed road; of repairing such parts of roads selected as were impassable for trucks; of the co-operation which had to be expressed by the state highway departments of the various states to keep the route clear of snow during the winter months and of the necessity of supplying doctors, kitchen equipment, oil-filling stations along the route, sleeping quarters and a plotting of the various truck assembly plants and their relation to the main cross-country route.

David S. Ludlum, president of the Autocar Co., Ardmore, Pa., spoke of the positive necessity of establishing schools where motor truck drivers could be trained instead of trying to give them training for a few hundred miles in the overland drive-aways. He brought out the fact that the great purchase of motor trucks would mount into millions of dollars and that it would be folly to entrust this vast investment to the hands of unskilled men who might abuse the trucks by their inexperience.

Hugh Chalmers made a great appeal for a better understanding of what the war really means to the automobile and motor truck industry. He briefly sketched the work of the automobile industry committee in Washington and how it was partially instrumental in blocking the proposed curtailment of the automobile industry because of the misinformed assumption that it was a non-essential. He stated that there would be no official curtailment of the motor car industry except in so far as the question of materials arose.

Several Shocks to Come

He stated that the citizens of the United States will have to meet several great shocks in the near future. The automobile industry will have to meet these shocks as well as the other great industries of the nation. He told of a recent movement in Washington to cancel the New York and Chicago National Automobile shows in order to save

The Platform on Which the N. A. C. C. Truck Makers Stand

1. Resolved, That the motor truck manufacturers of the United States, in convention assembled in New York on January 8, 1918, hereby tender to the President of the United States, to the Secretary of War and to the Council of National Defense, their services and co-operation in meeting the transportation needs of the Government and the country, and offer the facilities of their factories to aid in the prosecution of hostilities against the Governments of countries with which the United States is at war. It is resolved, That copies of this resolution be addressed to the President and the Secretary of War.

2. Whereas the present unprecedented crisis in the railroad transportation service of the country has made imperative an extraordinary development of motor trucking by highway to meet the needs of the War Department of the Government and of the industry and commerce of the United States, and

Whereas it is essential to the effective use of motor vehicles as a measure of relief of freight and express congestion that the main

highways be put and kept in good usable condition for the movement of the products of farm and factory, it is

Resolved, That the Director-General of the Railroads be urged to raise the embargo against the use of open-top railroad cars for the shipment of road materials and machinery in sufficient time to permit of resumption of highway construction and repair early next spring in the Northern States and, if conditions permit, that this portion of the order be rescinded this winter in so far as it affects the Southern States and California.

3. Resolved, That a committee of five representatives of motor truck manufacturing companies be appointed by the president of the National Automobile Chamber of Commerce to co-operate with and assist the Highways Transport Committee of the Council of National Defense in working out problems arising in connection with the organization and development of transportation by public highway for the relief of railroad freight congestion and to facilitate the

movement of military trucks and the transportation of the mails.

4. Resolved, That the representatives of motor truck companies in attendance at this convention indorse unanimously the work and plans of the Highway Transport Committee of the Council of National Defense and hereby tender the full co-operation of the motor truck industry in developing ways and means for increasing the effectiveness of the motor truck in moving merchandise and other freight and express matter.

5. Resolved, That the motor truck manufacturers of the United States, assembled in convention January 8, 1918, who view with increasing apprehension the various forms of drastic motor truck legislation already passed and other forms threatened, hereby appeal to the Council of National Defense, asking the council to request the various States in this time of stress when transportation is the need of the hour, to refrain from passing or enforcing and unreasonable legislation that would interfere with motor truck transportation.

railroad transportation and coal with which to heat the show buildings. It was partially due to the work of his committee that these movements were sidetracked. He pointed out that of all years in the history of the automobile industry 1918 was the one year in which the shows should be continued, in order that the necessary readjustment between the passenger car maker, his distributor and his dealer might be effectively met and that the calling off of the shows at this time would entail a great financial loss of thousands of dollars due to previously arranged contracts and preparations.

He also spoke of the possibility of closing down all the schools and churches in this country for a period of one week. In this connection he said it was also possible that all of the industries might have to shut down completely for one week, including those of the automobile and motor truck, in order to relieve the acute railroad congestion and start off anew under better conditions at the end of the shutdown. He gave it as his opinion that he would rather shut down completely for one week than to run at the present inefficiency with the almost positive assurance that the efficiency of the plants would be further decreased unless the present railroad congestion was immediately removed.

H. L. Horning, of the Automotive Products Section of the War Industries Board, pointed out that the motor truck has the greatest chance for development in the history of the industry. He pointed out the possible use for from 100,000 to 300,000 motor trucks in the parcel post delivery system of this country, and said that it was necessary for motor truck manufacturers to get behind legislation in Washington to make this possible. With the use of motor trucks in this work made possible through government legislation, the various truck companies would advance the idea of the necessity of the motor truck much more rapidly than they would if they should first try to sell their trucks separately to the Post Office Department. It was also his opinion that the motor truck has not yet been sold to the country at large, and that the surface of the possibility of motor truck use has only as yet been scratched.

Plenty of Gasoline

One of the startling statements made by H. L. Horning was to the effect that there is an over-production of gasoline today of more than 1,000,000 gallons a day.

Horning, in his official capacity in Washington, has already been in receipt of many inquiries from motor truck manufacturers as to obtaining priority orders for the shipment of goods entering into motor truck manufacture, and brought out the fact that notwithstanding that these makers have A-1 priority orders, they could still not get materials.

In his opinion, the remedy for this difficulty lies in the motor truck establishing its status as a national necessity. If motor truck makers can prove to the Government the necessity for using more and more motor trucks in order to relieve the freight congestion and can actually relieve it, the status of the motor truck will become firmly fixed and there will be no question as to the various makers not getting sufficient material to produce their vehicles.

The need for a Federal statute controlling the operation of motor trucks in every State of the Union was the outstanding feature of the talk given by Windsor T. White, chairman of the N. A. C. C. Commercial Vehicle Committee, on "Legislation Affecting the Use of Motor Trucks." White's paper treated of the present non-uniformity of existing laws regarding the operation of motor trucks, and the fact that a truck owner operating his vehicle in more than one State would

have to equip his trucks with different sized tires if the various laws were carried out to the letter. In some cases the trucks which could be operated in one State could not be run in another on account of the difference in the existing laws.

S. M. Williams, of the Garford Co., Lima, Ohio, made an appeal for the immediate building of national highways suitable for continuous motor truck traffic. These roads will have to come first because our present thoroughfares are not able to withstand the greatly increased amount of freight which trucks will have to carry over them within the next year.

Some Laws Unfair

J. F. Winchester, secretary of the Motor Truck Club of New Jersey, told of unfair laws controlling the operation of motor trucks in his State, and of how from 60 to 70 per cent of all the trucks operating in New Jersey at the present time will be barred if the new law were enforced to the letter. He brought out the fact that according to the present law, which went into effect Jan. 1, 1918, 5-ton trucks like the Pierce-Arrow, Packard, Mack and others which carry over 66 per cent of their total load on the rear wheels, would not be allowed on the road if the present reading of the law that not more than one-third of the total weight be carried on any one wheel were strictly enforced.

Roy D. Chapin, chairman of the Highways Transport Committee, told of the great need of transportation in order to win the war. He mentioned the inadequacy of our present rail, inland water and ocean transportation, and of the great possibility of motor truck haulage provided suitable roads were built and properly maintained.

The great reliance which the Government departments are now placing upon the motor trucks was brought out by a request made to the Highways Transport Committee by the Shipping Board asking that the war trucks driven overland carry parts of ships now urgently required at the yards along the Eastern seaboard. The work which trucks can accomplish in relieving the present terminal congestion was also discussed, and the necessity for good roads kept opened all the year around made evident the trucks were to succeed in this important work.

Problem of Return Loads

The problem of return loads must also be solved if the trucks are to operate at their maximum efficiency. Chapin told of the plan now being introduced in the State of Connecticut in which a Return Loads telephone number be placed in the telephone directory of each city. Then if a driver carries a load from one city to the other, all he has to do is to call up Return Loads in the city to which he has driven and inquire if there are any loads to be returned to the city from which he has come.

George H. Pride, also a member of the Highways Transport Committee and himself an operator of a large fleet of motor trucks, told of the great possibility of motor truck use in emergencies where time is paramount; in the delivery of express material; in the haulage of high grade or high rate L. C. L. freight shipment; of the possibility of eliminating grating when goods are hauled by trucks, and of combined long inland waterway hauls by garages and short motor truck hauls at each end of the route.

The positive need for a new type of motor truck road built upon a new engineering and logical basis was the gist of the remarks of George C. Diehl, who is chairman of the Good Roads Committee of the American Automobile Association.

The necessity for and the probable appointment of one centralized Government purchaser of motor trucks in Washington was the high spot of the important address of

Christian Grl, director of production, military truck division, Quartermaster Department U. S. A. Grl outlined briefly the development of the Government motor truck program and of the necessity of the truck industry selecting a representative in Washington to assist the Government in carrying out this vast undertaking. He favors putting the burden of the production of suitable motor trucks in sufficient quantities to make possible the Government's ambitious program directly upon the motor truck industry. Such a move would greatly simplify matters and will undoubtedly come to pass within a short time.

M. A. M. A. Re-elects Officers

NEW YORK, Jan. 10—The Motor & Accessory Manufacturers' Association yesterday held its annual meeting and re-elected four retiring directors: Christian Grl, Standard Parts Co., Cleveland; E. H. Broadwell, Fisk Rubber Co., Chicopee Falls, Mass.; E. W. Beach, Manufacturers' Foundry Co., Waterbury, Conn.; L. M. Wainwright, Diamond Chain & Mfg. Co.

All of the officers of the association except the secretary were re-elected as follows: President, C. W. Stiger, Stromberg Motor Devices Co., Chicago; first vice-president, C. E. Thompson, Steel Products Co., Cleveland; second vice-president, E. H. Broadwell, Fisk Rubber Co., Chicopee Falls, Mass.; third vice-president, T. J. Wetzel, Precision Die & Casting Co.; treasurer, L. M. Wainwright, Diamond Chain & Mfg. Co.; assistant treasurer and secretary, W. O. Rutherford, B. F. Goodrich Co. A. P. Sloan, formerly assistant treasurer, remains a member of the board of directors.

The fourteenth annual banquet, held at the Waldorf yesterday, was attended by over 500 members. After an address of welcome by President Chas. W. Stiger, a combined dinner, vaudeville performance, war lecture, and war movie show took place, and continued until 1:30 a.m.

Grossman Men Join Colors

BROOKLYN, N. Y., Jan. 14—The following men from the Emil Grossman Mfg. Corp. have recently joined the Army and Navy: N. P. Aprice, J. Caputo, A. Curcio, P. Heinz, J. Fisch, A. Gluckman, M. A. Lazarus, N. Macaluso, M. S. Rosen, R. R. Rosenquist, M. Schwartz and C. Zalamey.

Second Truck Train Arrives

NEW YORK, Jan. 14—The largest fleet of government war trucks yet driven overland arrived at Governor's Island Jan. 8 after a 300-mile trip from the factory of the Pierce-Arrow Motor Car Co., Buffalo, N. Y. The train consisted of forty-six 5-ton Pierce-Arrow trucks, manned by 100 members of the Twentieth United States Engineers in command of Capt. J. K. De Loach and Lieut. G. C. Eastman. The convoy left the Pierce-Arrow factory on New Year's morning and ran east across the State to Albany and then followed the Hudson River Valley on the eastern side of the river down through Ossining, Peekskill and Yonkers to New York.



The Gibson Co. salesmen and Sales Manager O. R. McDonald

1918 to Be Big Year for Accessory Lines

Indianapolis Jobber's Men in Sales Convention Foresee Great Possibilities

INDIANAPOLIS, Jan. 10—The year 1918 offers broader and more substantial possibilities for the wholesale and retail automobile accessory trade of the United States than any year in the history of the business.

This was the outstanding conclusion reached at the annual two-day conference of salesmen of The Gibson Co., accessory distributor and representative of manufacturers, which was held here last week.

The fact that there are now about 4,000,000 cars in use in this country, and that these automobiles will continue to be operated despite the war, means, according to conclusions of the conference, that there will be a big volume of accessory business the current year. Even should a sharp curtailment of new car production occur, the cars now in use would still have to be supplied with accessories and other supplies.

Joseph M. Bloch, manager of the company and a director of the National Association of Automobile Accessory Jobbers, expressed keen optimism over the business outlook in addressing the conference. O. R. McDonald, newly appointed manager of the accessory department, directed the conference.

In addition to Gibson department heads who addressed the various sessions representatives of manufacturers were also on the program. Among them were the following: National Carbon Co., Cleveland, O.; Dayton Wire Wheel Co., Dayton, O.; Firestone Tire & Rubber Co., Indianapolis; Jenkins Vulcan Spring Co., St. Louis; Findeisen & Kropf Mfg. Co., Chicago; McQuay-Norris Mfg. Co., St. Louis; Imperial Brass Works, Chicago; U. S. Light & Heat Corp., Niagara Falls, N. Y.; Platt & Washburn

Refining Co., Bayonne, N. J.; Weaver Mfg. Co., Springfield, Ill.; Sparks-Withington Co., Lansing, Mich.; General Electric Co., Ft. Wayne, Ind.

Opportunities for Connecticut Dealers

HARTFORD, Jan. 13—The deposits of the people of Connecticut in savings banks and trust companies amounted on Oct. 1 to \$400,305,985.31, an increase of almost \$28,000,000 over the amount of deposits on Oct. 1, 1916. It has been figured out that the increase is sufficient to purchase 22,000 medium-priced motor cars.

Alberta Taxes on Wheelbase

WINNIPEG, Jan. 14—A new style of automobile tax has been brought into effect in the province of Alberta where the tax is now charged on wheelbase instead of horsepower. The schedule follows:

Not exceeding 100 in., \$15; not exceeding 105 in., \$17.50; not exceeding 110 in.,

\$20; not exceeding 115 in., \$22.50; not exceeding 120 in., \$25; not exceeding 125 in., \$27.50; not exceeding 130 in., \$30; not exceeding 135 in., \$32.50; over 135 in., \$35. Figuring on this basis the fee for a Ford car will be \$15. Electric cars will be charged a straight fee of \$15. All fees include the supply of the number plates.

St. Paul Wants Wheel Tax

ST. PAUL, Jan. 5—The city is considering plans to raise \$100,000 revenue a year from a wheel tax. Saloons are diminishing and money must be raised some way. Other means will be considered also, so vehicles will not have to make up the whole deficit.



Carhart Motor Co.'s building where Oklahoma City's show is to be held

Saw Wood—Read Page 5

Go to the Chicago Show

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

E. K. Conover, formerly manager of the windshield department of the Paige Steel & Wire Co., is entering the windshield department of the Zenite Metal Co., Indianapolis. The windshield department of the Paige Steel & Wire Co. was recently sold to the Motor Products Corp. of Detroit.

I. D. Landis has been appointed sales manager of the Elkhart Carriage & Motor Car Co., Elkhart, Ind., and has assumed his new duties. He was formerly advertising manager and director of sales correspondence for the Crow-Elkhart Motor Co.

Russell T. Gray, formerly advertising manager of the Haynes Automobile Co., has entered business for himself as advertising engineer, and has opened offices in the First National Bank Building, Chicago.

D. B. Williams has joined the Clydesdale Motor Truck Co., Clydesdale, Ohio. He was formerly with the Mutual Motors Co., Jackson, Mich.

O. S. Johnson, formerly manager of the Lee Tire Branch, in Boston, will open a branch for that firm at 3205 Locust street, St. Louis. **B. C. Layman** will be assistant manager.

E. W. Arbogast, for several years connected with retail distribution in St. Louis, has joined the staff of the F. B. Stearns Co. as district sales manager.

E. E. Wilmer, who for some time was manager of the Hampden Auto Sales Co., Baltimore, Lexington distributor, has become associated with the Seitz Auto Co., as service manager. The latter company handles the Velle.

Charles E. Willar, who had been selling the Oakland line for Eliason Bros. Motor Co., Baltimore, has joined the Reinhard Motor Car Co., Oakland distributor.

L. P. Murray, formerly mid-western manager of S. F. Bowser & Co., Inc., Toronto, has been appointed Canadian manager with jurisdiction over the Canadian office, factory and sales force. The Canadian activities have recently been under the direction of Harry Christie, who will now turn his attention entirely to the sales organization throughout Canada. The head office of the company for Canada is at 66 Fraser Avenue, Toronto.

Otis C. Friend, who recently resigned the presidency of the Mitchell Motors Co., has returned to the United Motors Corp., New York, and reassumed the duties of vice-president. He is at present on vacation in California and expects to resume his duties Feb. 15.

H. W. Biddle, formerly with the Roberts-Toledo, O., a Toledo jobbing house, has joined the Silvex Co., Bethlehem, and will have charge of Chicago and the West.

J. Wadsworth Staff, formerly with the Silvex Co., in Chicago, has set up for himself as the Highway Mfg. Co., and has opened an office in the Lytton Bldg., Chicago.

Clarence B. Hawke has become affiliated with the sales division of the motor parts department of the Rich Tool Co., Detroit. He was formerly connected with the Chicago factory.

Carl Walthers, for several years manager of the Moon Motor Co. service in Chicago, has been transferred to St. Louis to a similar position.

W. E. Conway, Jr., manager of the St. Louis Branch of the Garford Motor Truck Co., has been commissioned a captain in the Aviation Corp. **F. E. Snell**, district manager, has been made manager of the branch.

A. E. Archer, president of the Detroit Electric Sales Co., St. Louis, has been made a captain in the Ordnance Reserve Corp of the U. S. Army. No immediate changes in the staff of the company are regarded as necessary.

F. W. Schwerdtseger has been appointed designing engineer of the Air-O-Flex Automobile Corp., Detroit. In the past he has been chief engineer of the United States Motor Truck Co., connected with the General Motors Truck Co., experimental engineer with the Federal Motor Truck Co., and designing engineer of the Denby Motor Truck Co.

Acme Truck Holds Sales Convention

CADILLAC, MICH., Jan. 14—The general factory representatives of the Acme Motor Truck Co. convened at the Cadillac plant for the annual sales conference Jan. 3, 4 and 5. Representatives from all parts of the United States were present. The daily sessions were presided over by **W. A. Kysor**, president and general manager of the company, and **C. J. Helm**, sales manager. The Acme Motor Truck Sales Co., Cadillac, will handle Acme trucks in northern Illinois, southern Wisconsin and Iowa. The organization is headed by **M. M. Ulfers** and **A. L. Slusser**, formerly with the Perfection Vapor Light Co., Freeport, Mich., and **J. B. Marshall**, who has been a factory representative of the Acme company.

Cleveland Firm to Sell Bodies

CLEVELAND, Jan. 12—The Columbia Body Sales Co. has been incorporated with a capital of \$25,000 to sell bodies for automobiles. The incorporators are **Joseph B. Posphehl**, **J. H. McTaggart**, **P. M. Barry**, **Fred L. Bennage** and **Roscoe M. Ewing**.

More Capital for Lane

KALAMAZOO, MICH., Jan. 9—The Lane Motor Truck Co. will increase its capital stock from \$25,000 to \$225,000. This increase is necessary to care for expansion, and is expected to speed production up to ten per week immediately.

Scrap Metal Prices

NEW YORK, Jan. 9—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age*:

	Cents Per lb.
Copper, heavy and crucible.....	22.00
Copper, heavy and wire.....	21.00
Copper, light and bottoms.....	19.00 to 19.50
Brass, heavy.....	14.25 to 14.50
Brass, light.....	10.50 to 10.75
Heavy machine composition.....	20.00 to 21.00
No. 1 yellow brass turnings.....	14.00 to 14.25
No. 1 red brass or composition turnings.....	17.50
Lead, heavy.....	5.75
Lead, tea.....	4.25
Zinc.....	5.25

1500 to Attend S. A. E. Chicago War Dinner

Over 1000 Tickets Already Sold and Dinner Likely Will Be Largest Ever Held

NEW YORK, Jan. 14—The War Dinner of the Society of Automotive Engineers, which will be held at the New Morrison Hotel, Chicago, on Friday, Feb. 1, as a climax to the special tractor meeting of the society on the same day, promises to be the greatest in the society's history. It will provide comfortable seating for 1500 diners; approximately 1000 seats have been sold already. The special program should stamp the event as perhaps the greatest war dinner of its kind held in Chicago.

To help carry out the war spirit, a \$25,000 pipe organ has been specially installed in the hotel dining room. In addition, music will be furnished by an orchestra of 30 pieces. There will be 50 singers from the Apollo Club, one of the largest musical organizations of the Windy City. Only war music will be sung and a special program is being handled by the Mid-West Section, with **B. Ayres**, of the section, in direct charge.

The professional tractor session will start at 1:30 p.m. on Friday, Feb. 1, in the Crystal Room of Hotel Sherman. The program deals with engineering under such heads as: Fundamentals of General Tractor Design; Fundamentals of Transmission Systems in Tractors; Fundamentals of Engine Design, and Tractor Service.

Carlisle Perfecting Distribution

NEW YORK, Jan. 14—The Carlisle Cord Tire Co., which was formed May 7, 1917, is rapidly perfecting its system of distribution. Following are a few of the dealers who have recently contracted to distribute Carlisle tires. On the Pacific Coast: **Tansey-Crowe Co.**, San Francisco; **Kimball-Upson Co.**, Sacramento; **Pacific Tire & Rubber Co.**, Los Angeles, and **San Jose Auto Supply Co.**, San Jose; in the East: **Post & Lester**, with their chain of stores operating in Connecticut; **Dayton Tire Co.**, Boston; **Invincible Tire Co.**, Providence, and **Del Chase Tire Co.**, Brooklyn; in the middle West: **Auto Tire Sales Co.**, Minneapolis; **Curtis Rubber Co.**, Milwaukee; **James T. Short**, Louisville, and **Sherwood-Crippen Co.**, Columbus.

Rockford Association Prospers

ROCKFORD, ILL., Jan. 14—The Rockford Automobile Trade Association elected new officers this week for the ensuing year as follows: President, **W. B. Taylor**; vice-president, **E. J. Gustafson**; secretary-treasurer, **W. H. Robertson**. The Rockford association was organized two years ago, and there has been no falling off in attendance or interest, the good results of such an organization being almost daily demonstrated. Cut-throat competition has been eliminated.



The pictures show the optimists at dinner and out for the air

Northwestern Chemical Co. Men See Big Year Ahead

THE annual sales assembly of the Northwestern Chemical Co. was held the first week of the new year in Marietta, Ohio. At the first meeting General Manager Hall said: "Boys, we are going to face conditions this year so unusual, so full of inconveniences, that we must be emergency men twenty-four hours a day. Let's greet every obstacle with a smile. Let's remember that we are at war. When a train is late, smile and do your bit. When you can't get Pullman accommodations smile and do your bit; when the bell-hop gives you a candle and announces that the electricity is off, or when you are put in a cold room because of coal shortage, just figure that you are in the trenches, and do your bit. Our first job is to win this war, and the conveniences of commercial life are going to get a few solid jolts. The spirit in which we take them is what's going to count."

Hunt Eastern Reo Wholesale Manager

NEW YORK CITY, Jan. 15—J. J. Hunt, formerly in charge of the Eastern wholesale department of the Reo company, has now been made retail sales manager of the Eastern branch, which includes the New York City, Brooklyn, Newark and New Rochelle territories. A. M. Welch, formerly a factory executive for Marmon, is now assistant sales manager. W. A. Dalton, formerly in charge of the Brooklyn branch, is now sales manager of the New York organization and F. D. Palmer, who up to Jan. 1 was in charge of the local used car department for Studebaker, is now in charge of the local Reo used car department.

Overland Earnings Put at \$8,500,000

TOLEDO, Jan. 14—Willys Overland has made a reduction of 66 per cent. in its quarterly dividend, payable Feb. 1, because of heavy expenditures necessitated by the transition of the plant from a peace to a war basis. The dividend is 25 cents, payable Feb. 1, to stock of record on Jan. 25. This is equivalent to 4 per cent a year on the \$25 par value of the stock, as compared with the usual 12 per cent.

Subject to final audit Willys Overland earned for the 12 months ended Dec. 31 net profits of \$8,500,000, before deduction of the Federal excess profits taxes, which cannot yet be determined, but which it is estimated will not exceed \$600,000. During the final quarter of

1917 the company was in process of transition from a peace to a war basis, in order to care for the manufacture on a large scale of motors and parts for the Curtiss Aeroplane Corp., as well as for heavy orders for the United States Government.

Disco Electric Starter Reorganized

DETROIT, Jan. 15—The Disco Electric Mfg. Co. has taken over the bankrupt Disco Electric Starter Co. and is planning extensive manufacture of Disco starters for Ford cars. Nothing has been carried over from the old company, except the name Disco; both the capital and personnel are entirely new. Dean Emerson of the Wagner Electric Co. has been appointed general manager and Harry F. Prescott, formerly with the Saxon Motor Car Co., is sales manager. A new building, which was occupied by the old company for a short period, is being used. The company is in a position to manufacture practically any electrical equipment for motor cars and it is rumored that it may enter this field.

DETROIT, Jan. 14—A \$1,500,000 corporation, headed by Albert Reiss, a retired commission merchant, has been formed by Detroit, Toledo and Chicago business men to operate 100 trucks between those cities. The trucks will run

in trains of five, each train carrying ten drivers and two mechanics. A tentative schedule allows 12 hours for the trip from Toledo to Cleveland, 5 hours from Toledo to Detroit, 18 hours from Toledo to Cincinnati and 24 hours from Toledo to Chicago. An option has been taken on a service station site in Cleveland. It is believed that the Government may establish such a route, as investigations have been carried on recently.

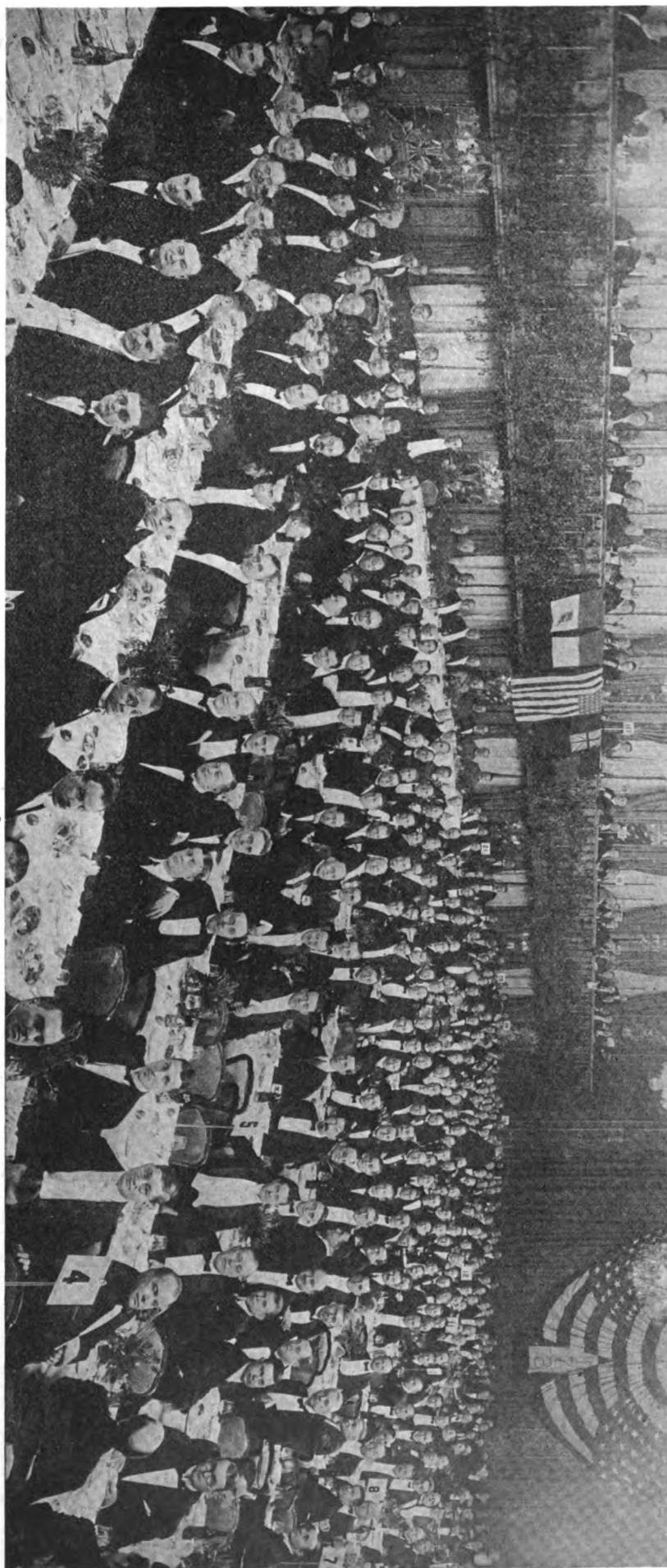
Lansing Firms Allied for War Work

LANSING, MICH., Jan. 14—Eighteen Lansing firms have organized as the Lansing Allied Industries to handle Government work, and have opened an office in the Munsey Building, Washington. Government contracts will be passed from factory to factory until they are completed. The concerns in the new organization follow: Gier Pressed Steel Co., Prudden & Co., Novo Engine Co., Auto Body Co., New Way Motor Co., Dail Steel Products Co., Reo Motor Car Co., Michigan Screw Co., Lansing Stamping & Tool Co., Hugh Lyons & Co., Lansing Foundry Co., Eureka Machine Co., Reliance Engineering Co., Lansing Co., Ideal Engine Co., Olds Motor Works, Duplex Truck Co., and the Lansing Forge Co. George J. Bates, Detroit, has been appointed Washington agent.

Don't Be a Business Slacker

Go to the Chicago Show

Annual Banquet of the Society of Automotive Engineers which was attended by more than 1100 members and guests



13th Annual Meeting of S. A. E. Completed

**More Than 1000 Members Added
During Year—Over 1100
Attend Banquet**

NEW YORK, Jan. 10—The regular winter session of the Society of Automotive Engineers was held here to-day, at the Engineering Societies' Building.

The program terminated to-night in a banquet at the Hotel Biltmore, which was attended by 1100 members of the society and guests. This is the thirteenth annual meeting of the organization which, during the year, has changed its name, being formerly the Society of Automobile Engineers.

During the year 1917 the membership of the organization grew from 2120 to 3119, this being largely due to the expansion in the field covered by the organization from the automobile line to embrace also the other automotive industries, including airplane, tractor, motor marine, motorcycle and stationary plants employing internal-combustion engines.

The society is in excellent financial condition, having invested during the year in \$24,000 worth of Liberty bonds and more than \$12,000 in other bonds and securities. Its work along the lines of standardization has been paid for in part by donations of the automobile and accessory trade organizations. The large addition of members has also brought in a substantial financial return.

A notable program was arranged, the morning being given up to routine matters, such as the business meeting, president's address, election of new officers and standards, while the afternoon was taken up by the professional session. The latter was the best attended in the history of the organization, the auditorium of the Engineering Societies' Building being packed to capacity. The program for the professional session was divided into three parts, the first being talks on Reasons Behind the Liberty Aircraft Engine, the second, papers on Reasons Behind the U. S. War Truck Design, and the third, a paper on Fuel for Automotive Apparatus. The speakers were: Col. V. E. Clark, Major J. G. Vincent and H. M. Crane on aircraft; C. T. Myers on the war truck, and Dr. E. W. Dean on fuel. Reports of these talks are given on other pages in this issue.

John Kendrick Bangs was toastmaster of the banquet, the speakers being Major J. G. Vincent, Howard E. Coffin, chairman of the aircraft board; Captain M. E. de Jarny, French Military Mission, and Charles F. Kettering, president-elect S. A. E. Speeches were largely devoted to matters pertaining to the war, and the meeting was made the occasion of demonstrations of a patriotic nature and of friendship for the allied nations who were largely represented by officers of

the French, British and Italian armies.

George Dunham, in opening the meeting, spoke of the rapid growth of the organization during the past year, and dwelt particularly on the patriotic service rendered to the government by the organization, and which is clearly recognized by the government. He told how the word automotive, coined by some of the members as a part of the name of the new organization to indicate its wide scope, has become a general term which is well recognized. The meetings have been well attended, President Dunham pointed out, particularly at Kansas City and Fremont last summer at the tractor sessions, and also at the summer session in Washington, where it was necessary to hold an overflow meeting because the capacity of the Bureau of Standards was overtaxed.

President Dunham stated that the government appreciated the great work of the S. A. E. in connection with the standardized government trucks, which are in three sizes, and also in the design of the Liberty aircraft engine. This work is going on rapidly, particularly in the standardization of airplane parts, many of the latter standards being adopted by the International Standards Board. The government's standard motorcycle has not been completed as yet, but society members are doing important work in connection with this design also. There are now over 125 members of the organization who are commissioned officers.

Two new sections have been formed, one of these at Buffalo and the other at Minneapolis. The journal of the society has grown from a small bulletin to an important record of the activities of the organization in all fields. The headquarters of the society also had to be enlarged.

Reports by the treasurer and by the membership committee showed the society to be in a healthy state in both directions. The surplus for the year amounted to \$16,930.96, the society having had an income of \$113,227.97 and expenditures of \$96,297.01. The membership increased by 1000, as indicated in President Dunham's address. Important revisions regarding the qualifications for membership are being studied by a special committee headed by B. B. Bachman, engineer of the Auto-car Co., and will be submitted to the members by mail ballot.

The entire report of the Standards Committee was accepted by the association, and, in addition to the work reported in last week's Automotive Industries, the marine standards were also adopted, as well as those of the Miscellaneous, Tire and Rim and Tractor Divisions.

Another important action taken was to waive the dues of members of the organization who are with the forces in France.

Henry Ford Wants Men

DEARBORN, MICH., Jan. 14—Henry Ford & Son, Inc., is taking on a large number of additional help. Those needed are tool makers, die makers and metal and wood pattern makers.

We Must Do More—Not Less

Go to the Chicago Show

Severe Storm Isolates Detroit

DETROIT, Jan. 14—For two days this city has been isolated by a severe storm. There have been increasing demands for coal, and as a result of the storm most of the supply has been shut off. A majority of the automotive companies are receiving a limited amount. The city's gasoline supply is also very low, due to increased demand, and dealers report only a limited amount on hand. Although the weather is warming up, and railroads are beginning to operate again, the traffic congestion continues bad. Railroad and drive-away outlets have been entirely shut off for the products of automotive factories, due to railroad and weather conditions.

Strom Heads U. S. Ball Bearing

NEW YORK, Jan. 14—At the last meeting of the board of directors of the United States Ball Bearing Mfg. Co. the following officers were elected: W. H. Strom, president and treasurer; E. N. Strom, vice-president; G. A. Strom, secretary. The change in officers was brought about by the recent death of Mr. A. A. Strom, father of the three officers of the company, who during his life was president of the company but who was associated with it only in an advisory capacity. The vacancy in the board caused by the death of Mr. Strom was left open to be filled at the next stockholders' meeting. No actual change in manage-

ment has taken place, for W. H. Strom retains his position as general manager, which he has occupied for the past 5 years, during which time he also has been an officer of the board. The new officer is G. A. Strom, who has been associated with his father in the Pettibone-Mulliken Co. for several years until a quite recent date, at which time he took over the active management of the old U. S. Ball Bearing plant in Oak Park, which is now operated as a subsidiary plant.

In connection with the change of name of the product from U. S. ball bearings to Strom bearings, it is somewhat of a coincidence that the change of name was publicly announced almost simultaneously with the death of Mr. Strom. It had been decided by the active members of the company that, in commemoration of Mr. Strom's very successful activities in the manufacturing world the name of the product be changed to Strom and one of the last official acts performed by Mr. Strom in his advisory capacity was to sanction the change of name. The capacity of the plant is to be increased.

Western Machine Products Formed

CLEVELAND, Jan. 14—The Western Machine Products Co. has been incorporated for \$100,000 and will take over the land and building of the Marvel Accessories Mfg. Co. In addition to the regular line of the old company, a special group of products will be manufactured. L. A. Katz has been elected president.

Keep the Home Fires Burning

(Continued from page 10)

they all piled onto the street cars. The motor car is one of the greatest necessities we have; it is a part of our national transportation system; but because we look at it as a case of individual ownership and you think of your neighbor's car, and the car that is owned by the man across the street, and not of cars as owned by our nation collectively, you don't see the importance of them in our national transportation system. But the minute you take all this transportation out and throw the load on the transportation that is left there is a breakdown and *everything goes to pieces*.

"The thought of sentiment that you are expressing is very damaging, Benny. It would take bread and butter away from a lot of people; it would bring about hardship and suffering and starvation; it would take away the means of living of many people who couldn't take any direct part in the war, no matter what happened.

"They are the innocent bystanders. We have a large population of innocent bystanders and they must not be harmed.

They can contribute money and moral support when they have it, but if we take it away from them they can't contribute anything else—they *can't even exist*.

"There is a fine fat chance of anyone keeping the home fires burning unless everybody everywhere keeps business going as best he can, gives as much support to as many people as he can and prevents that part of our country that is left behind from going to pieces entirely.

"There is a silver lining that shines through the dark cloud and what we need most is a few more people who can see it. After they have seen it we need a few people who will give it a yank and turn the dark cloud inside out. Yourself and a few more motor car salesmen who don't believe in the business they are in had better go get a job in munitions factories or enlist and go to war and leave this very essential home work to some people who can see why it is a necessity.

"Think again, Benny."

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. P.	Ignition	Carburetor	Starting	Clutch	Gearbox	Wheels	Tires	Rims	2-Door	5-Door	7-Door	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x5 29.4 Remy		Remy	Stumg	Stumg	DD	3	122	34x4	SS	1595	1595	1595	2150	2150	2150	...
ALLEN	4-31x5 22.5 Conn		Stumg	Stumg	A-Lite	D	3	112	32x3 1/2	SS	11095	1095	...	1395	1395	...	...
AMERICAN	6-31x5 29.4 G & D		Zenith	G & D	G & D	D	3	122	32x4	SS	1375	...	...	...	...	...	...
ANDERSON	6-31x4 25.3 Conn		Zenith	Wetha	Wetha	DP	3	120	32x4	SS	**1465	...	...	2165	...	...	...
Deluxe	6-31x5 29.4		Zenith	Wetha	Wetha	D	3	...	...	...	**1925	...	...	...	...	...	...
APPERSON	6-31x5 29.4 Remy		Rafid	Rafid	Bijur	DP	3	130	35x4 1/2	SS	12900	2200	...	...	...	...	...
6-18	8-31x5 33.8 Remy		Johnson	Bijur	Bijur	DP	3	130	35x4 1/2	SS	12550	2550	...	...	...	...	...
AUBURN	6-31x4 25.3 Remy		Rafid	Rafid	Remy	DP	3	120	34x4	SS	1345	1315	...	...	...	...	...
6-39-B	6-31x5 29.4 Delco		Rafid	Delco	Delco	DP	3	131	35x4 1/2	SS	1685	1685	...	...	...	...	...
AUSTIN	Hy-King 12-21x5 39.6 Delco		Stumg	Delco	Delco	D	6	142	34x4 1/2	QD	3750	3750	4000	4550	4850	5250	...
BIDDLE	4-31x5 22.5 E'mann		Zenith	G & D	G & D	DP	4	121	32x4	QD	2600	...	12650	...	4100	4000	...
BOUR-DAVIS	6-31x5 29.4 West		Stumg	West	West	DP	3	118	33x4 1/2	QD	...	1385	...	...	...	...	...
18B	4-31x5 22.5 West		Miller	West	West	DP	3	118	32x4	...	...	...	...	...	...	...	...
BREWSTER	4-4 25 1/2 25.6 Bosch		Zenith	U.S.L.	U.S.L.	C	3	125	34x4 1/2	SS	7200	725	...	...	8400	8540	...
BRISCOE	4-31x5 16.3 Conn		Buick	A-Lite	A-Lite	C	3	104	30x3 1/2	C	725	725	...	...	...	850	...
BUICK	4-31x4 18.2 Delco		Marvel	Delco	Delco	C	3	106	31x4	C	795	795	...	...	1185	1445	...
E 4-34-35	6-31x4 27.3 Delco		Marvel	Delco	Delco	DP	3	118	34x4	SS	1265	1265	...	11685	...	1215	...
E 44-45	6-31x4 27.3 Delco		Marvel	Delco	Delco	DP	3	124	34x4 1/2	SS	1485	1485	...	...	2175	...	...
E 49	6-31x4 27.3 Delco		Marvel	Delco	Delco	DP	3	124	34x4 1/2	SS	...	...	...	...	...	...	...
CADILLAC	8-31x5 31.2 Delco		Own	Delco	Delco	D	3	132	35x5	SS	2805	2805	...	...	3650	4145	...
57	8-31x5 31.2 Delco		Own	Delco	Delco	D	3	132	35x5 1/2	SS	...	...	...	...	...	...	...
CASE	6-31x5 29.4 Wetha		Rafid	Wetha	Wetha	D	3	125	35x4 1/2	SS	11875	1875	...	...	2375	...	...
CHALMERS	6-31x4 25.3 Remy		Stumg	Wetha	Wetha	DP	3	117	32x4	SS	1365	1365	1450	...	1850	2025	...
6-30	6-31x4 25.3 Remy		Stumg	Wetha	Wetha	DP	3	122	34x4	...	...	...	...	...	...	...	...
CHANDLER	6-31x5 29.4 Bosch		Rafid	Wetha	Wetha	DP	3	123	34x4	SS	11595	1595	...	2195	2295	2895	...
CHEVROLET	4-31x4 21.7 Remy		Zenith	A-Lite	A-Lite	C	3	102	30x3 1/2	C	620	620	...	...	1060	...	...
490	4-31x5 21.7 Remy		Zenith	A-Lite	A-Lite	C	3	108	33x4	SS	935	935	...	...	1475	...	...
FA-2	8-31x4 36.4 Remy		Zenith	A-Lite	A-Lite	C	3	120	34x4	SS	1365	1365	...	...	...	...	...
D	8-31x4 36.4 Remy		Zenith	A-Lite	A-Lite	C	3	120	34x4	SS	...	...	...	...	...	...	...
COLE	8-31x4 39.2 Delco		Stumg	Delco	Delco	C	3	127	35x4 1/2	SS	2195	2195	2695	...	2895	...	...
870	8-31x4 39.2 Delco		Stumg	Delco	Delco	C	3	127	35x4 1/2	SS	...	...	...	...	...	...	...
COLUMBIA	6-31x4 25.3 A.Kent		Stumg	W.Lard	Wetha	DP	3	115	32x4	...	11495	1350	...	...	1995	...	...
C&D	6-31x4 25.3 A.Kent		Stumg	W.Lard	Wetha	DP	3	115	32x4	...	...	...	...	...	...	...	...
COMET	6-31x5 29.4 Delco		Miller	Dyneto	Dyneto	DD	3	125	33x4	...	...	...	1285	...	...	...	...
C-30	6-31x5 29.4 Delco		Miller	Dyneto	Dyneto	DD	3	125	33x4	...	...	...	...	...	...	...	...
COMMONWEALTH	4-31x5 19.6 A.Kent		Carter	Dyneto	Dyneto	DD	3	112	32x3 1/2	SS	1995	995	...	...	...	...	...
4-40	4-31x5 19.6 A.Kent		Carter	Dyneto	Dyneto	DD	3	112	32x3 1/2	SS	...	...	...	...	...	...	...
CROW-ELKHART	4-31x5 19.6 Conn		Zenith	Dyneto	Dyneto	D	3	114	32x3 1/2	SS	...	...	...	...	...	...	...
CE-36	4-31x5 19.6 Conn		Zenith	Dyneto	Dyneto	D	3	114	32x3 1/2	SS	...	...	...	...	...	...	...
CUNNINGHAM	8-31x5 45.0 Delco		Stumg	West	West	D	3	132	35x5 1/2	...	...	...	...	...	...	...	...
8-31x5	8-31x5 45.0 Delco		Stumg	West	West	D	3	132	35x5 1/2	...	...	...	...	...	...	...	...
DANIELS	8-31x5 33.8 Wetha		Zenith	Wetha	Wetha	D	3	127	34x4 1/2	QDR	...	...	...	...	...	...	...
B	8-31x5 33.8 Wetha		Zenith	Wetha	Wetha	D	3	127	34x4 1/2	QDR	...	...	...	...	...	...	...
DAVIS	6-31x4 25.3 Delco		Stumg	Delco	Delco	C	3	119	34x4	...	...	...	...	1485	1485	1850	...
H. I. K	6-31x5 29.4 Delco		Stumg	Delco	Delco	C	3	125	34x4 1/2	...	...	...	...	1785	1785	...	...
J. I.	6-31x5 29.4 Delco		Stumg	Delco	Delco	C	3	125	34x4 1/2	...	...	...	...	...	...	...	...
DIPATCH	4-31x5 22.5 Bosch		Rafid	U.S.L.	U.S.L.	CU	4	120	35x4 1/2	QD	1150	...	1250	1400	1400	...	...
DIXIE FLYER	4-31x5 16.9 Conn		Carter	Dyneto	Dyneto	D	3	112	32x3 1/2	SS	1995	995	...	...	...	...	...
LSB	4-31x5 16.9 Conn		Carter	Dyneto	Dyneto	D	3	112	32x3 1/2	SS	...	...	...	...	...	...	...

[illegible]

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Titan" Tillotson, "B & Ball" Ball & Ball, "Atr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spidf" Spindorf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myera. NOTE— $37\frac{1}{2}\times 5\frac{1}{2}$ means that the rear tires are 37½%, and the front are smaller. Detachable top. 300x. means \$300 extra.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Wash- ington	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn. State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto Trade Assn., Wanamak- er's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual, Exposition Park C. A. Simmons, Mgr.	Jan. 14-19
Milwaukee, Wis.	Milwaukee Automobile Dealers Inc., Auditorium. First 7 days, passenger cars; last 3 days, com- mercial cars. Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wignmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Ar- mory, Hugh B. Andrews, Mgr.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Ar- mory. Jos. M. Rieg, Mgr.	Jan. 21-26
Oklahoma City, Ok.	Oklahoma City Automobile Deal- ers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Baltimore, Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Ar- mory.	Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Troy- lor Motor Co.'s Garage. P. W. Feiseling, Publicity Mgr.	Jan. 23-28
York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan. 26- Feb. 3
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26- Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26- Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory. National Automobile Chamber of Commerce.	Jan. 26- Feb. 2
Chicago	Salon, Catherethan Room of Con- gress Hotel.	Jan. 26- Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.	Westmoreland Automobile Deal- ers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Indianapolis, Ind.	Indianapolis Automobile Trade Assn., Diamond Chain Works Bldg. John B. Orman, Mgr.	Feb. 25- Mar. 2
Minneapolis, Minn.	Twin Cities Automobile, Truck, Tractor and Industrial Exposit- tion, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars.	Feb. 23-Mar. 2
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	Mar. 5-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Sec- ond Battery Armory. D. J. Bar- rett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Assn., Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Trade Assn., Fidelity Bldg. R. W. Shrelner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn., Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.	St. Louis Auto Mfgs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Toledo, O.	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17
Hartford, Conn.	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Hol- gate, Mgr.	Feb. 16-23
Albany, N. Y.	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.	San Francisco Dealers' Assn., Ex- position Auditorium. G. A. Wahl- green, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Duluth, Minn.	Duluth Auto. Trade Assn. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hip- podrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Passenger and Sec- ond Annual Truck, Des Moines Automobile Dealers' Assn., Col- iseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	March
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.	Second Annual, Merrill Audito- rium. John C. Fowler, Mgr.	Feb. 25- Mar. 2
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino B. B. Steiber, Mgr.	Feb. 25- Mar. 2
Columbus, O.	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27- Mar. 2
Boston, Mass.	Salon, Boston Automobile Deal- ers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27- Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Audi- torium. Clarke G. Powell, Mgr.	Feb. 23- Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Asso- ciation, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Assn., Coliseum.	Mar. 6-9
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Great Falls, Mont.	Montana Automobile Distributors Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
San Francisco, Cal.	Motor Truck Dealers of San Fran- cisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Trenton, N. J.	Trenton Auto Trade Assn., Sec- ond Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn., Samuel S. Cohn, Mgr.	Apr. 9-13

Conventions

New York	World's Salesmanship Congress, Third Annual.	Jan. 16-20
Montreal, Can.	Convention of all men interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago, Ill.	Annual Convention, Garage Own- ers' Assn. of Ill., Green Room, Congress Hotel.	Jan. 29-31
Richmond, Va.	Richmond Automobile Dealers' Association, First Regimental Ar- mory. Henry B. Marks, Mgr.	Jan. 21-26

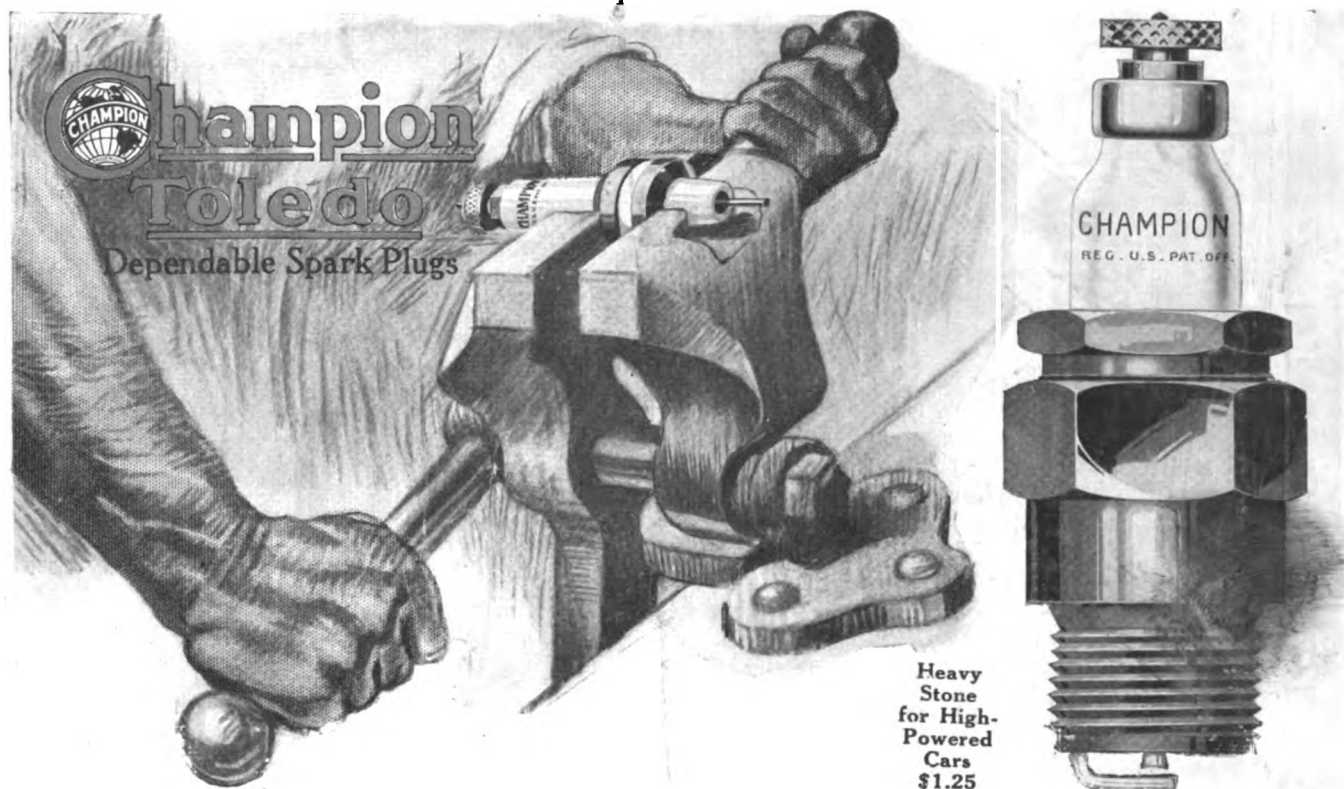
MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 4

New York, January 23, 1918

Ten cents a copy
Two dollars a year



IF YOU put your spark plugs in a vise and exerted all your strength to subject them to the greatest possible pressure, you would expect the porcelain to crumble.

Yet that's virtually what they must stand in your motor.

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Champion Spark Plug Company, Toledo, Ohio



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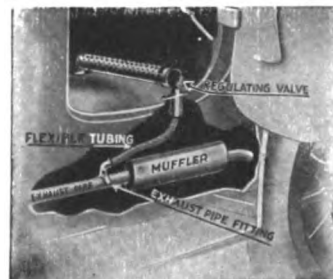
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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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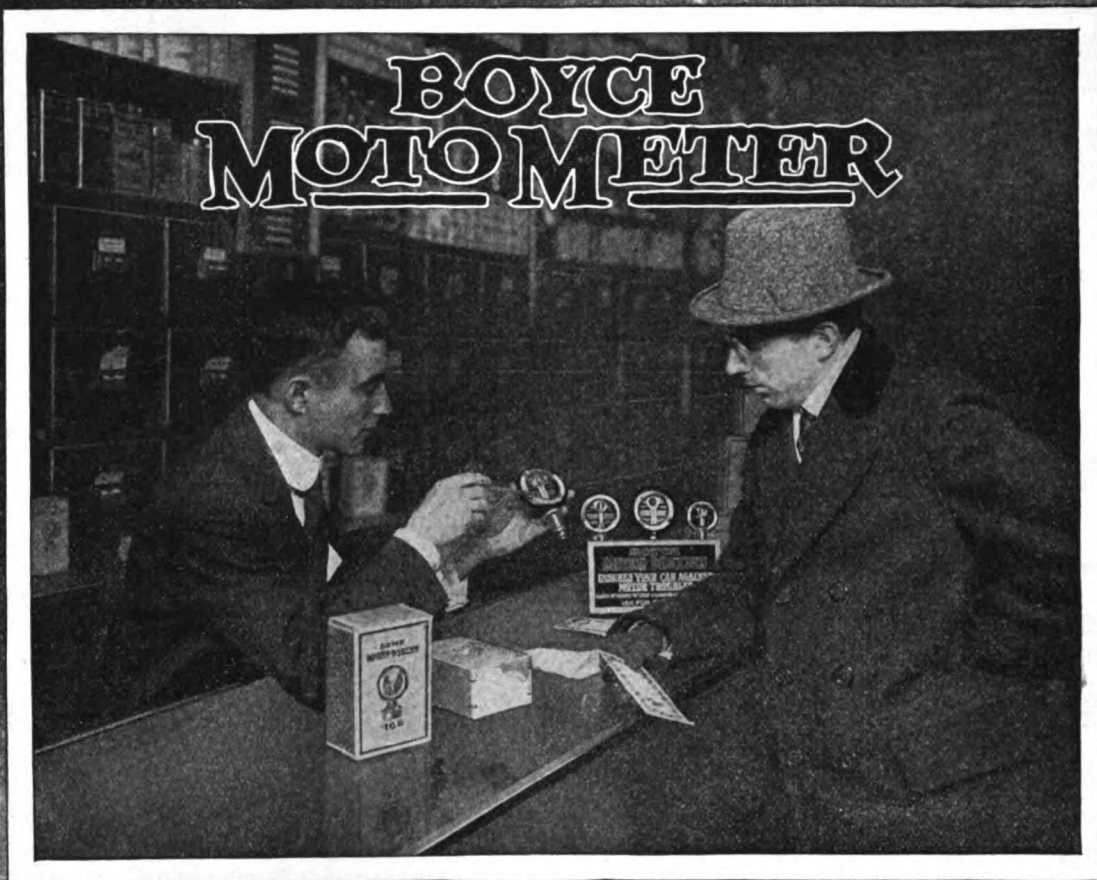
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Long Island City, N. Y.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, January 23, 1918

No. 4

Transportation Says Chalmers Is Country's Real Need

We Must Make More Cars and Sell More, He Tells Cleveland Dealer Convention—We Cannot Carry on a Protracted War on a Policy of Contraction—There Are No "Non-Essentials"

CLEVELAND, Jan. 21.—Hugh Chalmers, the motor car industry's champion in this great crisis to-day, gave a message to all the automobile dealers of America. He decried the down-in-the-mouth attitude of the faint-hearted, urged strong men to shake off their sackcloth and ashes and rise up and be fighters of industry for the salvation of their country.

His message was delivered to 400 Ohio dealers in the ballroom of the Hollenden Hotel, at a rally luncheon given to the trade of the State by the Cleveland dealers. Secretary Fred H. Caley had sent out nearly 4000 invitations to dealers to hear Chalmers. One hundred and fifty men came from Akron alone.

Chalmers condemned strongly the dealers who welch and wilt and believe their business has no right to exist. He showed how those dependent upon them would suffer if the dealers—who should be leaders—lay down. He said we could not expect business as usual, but that we would have good business, and that if we didn't have good business we would lose the war.

He pointed out the enormous transportation necessity that the motor car is, and how great a servant of the country is the man who sells cars.

He urged the dealers to take a greater interest in their country's welfare, to criticise constructively when they could, and to obey orders when they are given.

Conscript All Men Under 50

Chalmers said he believed every man up to 50 years of age should be conscripted and placed in the National Army or the industrial army. He said no man should be permitted to shirk. He also said we might expect a shut-down for a week in railroad passenger traffic, and that while it would release engines to move freight it would also demonstrate what an essential the motor car is.

The policy of expansion and not of restriction was urged. A war of 4 or 5 years could be won no other way, he said. Car production will be less, he said, but probably not enough less to interfere with the 1918 sales demand.

The need to-day is for transporta-

tion, and not coal, he stated, and he urged that 100,000 trucks be conscripted as a solution of the problem. Dealers must work more intensively, he asserted; they must hold more meetings of their salesmen. They must dig harder into business and must throw their whole souls into their work, which is only the work of winning the war.

When Chalmers finished, the applause was long and loud. Men crowded around to shake his hand. After that he went to the Cleveland motor car show, which was packed with people, and all the afternoon was busy shaking the hands of men who had heard his address. He said:

"If we are the third largest industry in the country—and we are, by statistics—for heaven's sake let us act like it and not act as if we were down somewhere about the forty-ninth or fiftieth.

"In the first place, we, of course, are all Americans. *We must be.* We are all assembled under this one slogan, 'Win the war.' While we as business men would like to have business as usual, we are more interested in having democracy as usual after the war than we

"The Automobile Industries Committee is the go-between to say to our government: 'We stand ready as patriotic business men to convert this industry as much as may be necessary to be of assistance to our government in its war program, but we want conversion and not destruction'"—

Hugh Chalmers.

are in having business as usual during the war.

"We cannot have business as usual during the war. We cannot have everything as we had it. There must be unusual conditions just like this order to close down for 5 days. We cannot have business as usual, but we do want business and industry as nearly as usual as we can have it and let the government have its war program 100 per cent.

"The war program of this country must come first, and after that we must have industry.

"After three months of careful and intensive study I do not believe this country can carry on a protracted war on a policy of contraction.

Must Have Policy of Expansion

"I believe it must be a policy of expansion. We must keep industry going. We must keep our business going, if we can, after the war needs are supplied.

"We are all under the same banner of 'Win the war.' We have an honest right to differ as to how it is best to win the war. We have a right to differ with those in authority, if we can point out constructive things that should be done to take the place of some of the things they propose.

"So, if we cannot have our business going as usual, then it is just as necessary—and all of you probably will agree—it is just as necessary to make dollars as it is to make munitions to properly finance the future conduct of the war.

"So, as I say, the Automobile Industries Committee has been appointed and is serving in Washington as the intermediary between the government and this vast industry employing nearly one million men and with the great capital that it has.

"We are the go-between to say to that government, *we stand ready as patriotic business men to convert this industry as much as may be necessary to be of assistance to our country in making its war program, but we want conversion and not destruction.* We want and are willing—while you dealers do not like to hear this and it is not going to come to pass—we want and are willing, and have said so repeatedly, that if this gov-

ernment needs it, it can have 100 per cent of the automobile productive capacity of this country, if it needs it, to win this war.

"They are not going to need 100 per cent of the automobile capacity. The automobile industry has already taken on a large number of war contracts, but I do not believe, gentlemen, for one moment that it is going to interfere with the production of automobiles; at least very much below the point of where the sales will be.

"I do not believe, as an automobile man, that we can have in this country during a period of 4 or 5 years' war 100 per cent of our biggest year in sales. I would not be telling the truth if I did not tell you that.

"With two or three million men, and probably five million men, on the other side, taken out of production, taken out of activity here and put 'over there,' I do not believe we can expect to pyramid this production year after year, as has been done, during the period of this war.

"We all want to make our business go, keep it alive, and we want to keep going as much as possible, but remember that this is not a money-making period necessarily, but it is a history-making epoch that we are in.

No One Should Be Disgruntled

"So I have no patience with the man who is disgruntled, who is dissatisfied, every time that something happens that unsettles his business.

"As far as official Washington is concerned, there is no disposition on the part of any official that I know anything about, or that our committee has been dealing with, to deliberately injure the automobile business or any other business. Their motives are just as high as yours and mine. The only difference between us is method, if you please. It is method.

"Now, then, we are down there to represent the industry for the purpose of convincing those gentlemen that they do not want unnecessarily to curtail this industry, the third largest, or any other industry, and, as I say, I don't think it is going to be necessary, because they understand themselves now that the

automobile business is somewhat of a half public business.

"You men as dealers, and we as manufacturers, have gotten a lot of publicity in the past for the automobile because—and that very publicity that you worked so hard for and got so much of in a time like this often works against us—there has been great exploitation of the great profits made in the automobile business.

"Those in the business know that that can be limited to 10 or 15 producers. Those enormous profits have not been made by the great bulk of the people in the business.

"If there is any one word that ever has done great damage to the automobile business in the last five years, it is the word *pleasure*. We are not making *pleasure* cars to-day. We are making *passenger* cars, and every dealer and everybody ought to realize that.

"We have suffered for our sins in the past in calling automobiles *pleasure* cars.

"In other words, gentlemen, there were some men in Washington who thought honestly of automobiles or *passenger* cars in terms of limousines. They thought they were all *pleasure* cars. They also thought in the terms of *joy-riders*. We had to convince them that all automobile men were not joy-riders any more than because you have a few people here in your city jail all of the people in Cleveland are just like them.

"So we must get this *pleasure* car business in its right place.

Transportation the Real Need

"What is the great crying need of this country to-day? As we point it out down there, the great need in this country to-day, the reasons for our five-day shutdown, is not scarcity of coal. It is not that. There is plenty of coal in the ground. There is plenty of coal mined. The mines only work two or three days a week now because they cannot haul it. It is *transportation*.

"Now, gentlemen, our industry is just as much a part of the transportation system in this country as our railroads and steamships and trolley cars. The automobile business is just like one great big huge power plant divided up into individual units for the individual use of the people in taking them around. What we must do is to make the people realize that. It is not a *pleasure* car.

"The problem of transportation, perhaps, is one which will always be with us until we get our railroads reorganized, and we are paying now in this period of congestion for the first of the sins of the last 10 or 15 years in trying to run these railroads too much ourselves and to keep from them revenue which should have been furnished for the development of their roads.

"I do not absolve the railroad from all blame. Perhaps they were not properly managed in certain places.

"But if there ever was a time when the automobile necessity is being decried or being depreciated it is the very time when we ought to rise to the occasion and say, 'Here is the third largest industry supplementing the railroads which

have practically broken down in this country.'

"We have a great proposition in transportation, and you gentlemen want to look upon it in that light. Now, what made this automobile business great? In the past you fellows have patted yourselves on the back and said you were responsible for the tremendous business that was done.

"Do you know that this automobile demand has been in existence for 2000 years, because the only way a man had of increasing the speed of his personal transportation has been by the automobile, and the only way he had for 2000 years was the horse and his own legs.

"It was not until the advent of the automobile that a man could increase his own efficiency and thus increase the value of his time. There was a demand. Suddenly it became possible. It became commercialized. It became a commercial proposition where a man could buy it and use it, and get somewhere, and know he could come back in a short space of time.

"The result was we tried to fill a 2000-year demand in 10 years and therefore gradually the production increased and we got to patting ourselves on the back.

Must Have Individual Transportation

"There is just as much demand for improved individual transportation as there was for improved community transportation. Railroads are community transportation. Trolley cars, community transportation, steamship community transportation, but the automobile is just as much a part of the individual system as they are of the community proposition.

"So, let's get our business right in our own minds. You men have no right, if you are business men, and I am convinced that you are all good business men or you would not be here—if you have the pep you ought to have, if you are made by the stuff that I think you are—you have no right to become discouraged about the automobile passenger car business.

"As an individual if I were selling cars to-day and a man said to me, 'I don't want to buy a car now because it is war time; I want to wait until later,' why, I would tell him that that is the very reason he needs one because now you have got to be 100 per cent efficient; you must have the latest improved efficiency methods or you cannot be in the pink of condition. That is the very reason he should buy a car.

Leaders Must Be Optimistic

"Then, another thing that we must all get into this spirit of this proposition: If you men feel that your business is not going to be right, if you feel you cannot sell cars, well, then, God help the men under you because if you, the heads of businesses, feel that way, then do not blame the fellows under you, especially the salesmen, because a good deal of this present automobile talk is psychology, notwithstanding some ridicule was made of the word psychology

"As an individual, if I were selling cars today and a man said to me: 'I don't want to buy a car now because it is war time; I want to wait until later', why, I should tell him, that that is the very reason he needs one now, because now he has got to be 100 per cent efficient"—

Hugh Chalmers.

in connection with the business depression in 1913 and 1914.

"If you have a salesman working for you and he calls on this man, and then a second man, and the third and fourth, and possibly the fifth man, and they all tell him that they do not believe they will buy a car just now, or they will keep their old ones for this season, why, then, he begins to believe them, because if you tell a man something often enough he will begin to believe it.

"That is psychology, and you fellows have got to keep your forces keyed up; you have got to keep your men in that condition, and the way to do that is by having more meetings of your organization.

"You ought to meet your men once a week during this period, get them together and help them answer these objections, give them the pep which you alone can give them, show them that you are a leader, that you are deserving of the name and you are not discouraged.

"On the other hand, there is going to be a demand for automobiles in this country. You can't stop it. There is going to be a great demand for automobiles.

Farmers Never So Rich

"The farmers were never so rich. Their business is going to be good. These billions of dollars which have been subscribed to the Liberty Loans have come from stockings, from socks and from safety vaults, and the government is spending them here and there and everywhere, and they are going into the arteries of trade. We cannot have business as usual, but we will have good business.

"We cannot have everything just as it was, but we are going to have good business in this country.

"And after all, gentlemen, there is no man in this country if he gives to the next five Liberty Bond subscriptions he is not going to give until it hurts. There are very few Americans to-day who are giving to either the Red Cross or buying Liberty Bonds until it hurts. They have always something in reserve. I will qualify that. Most of them have.

"So, gentlemen, it is our duty to sub-

scribe to the Liberty Bond campaign. Every one of you has to go over the top more than 100 per cent. We have to give to the Red Cross. It is better to contribute to the Red Cross now than to pay tribute to the Iron Cross later.

"You gentlemen have to do all these things. Yes, and in addition, gentlemen, we have got to do business too. We must do business. We have got to buy and we have got to sell, and we have to give in trade, and we have got to be level-headed business men. We have got to do these things.

"You men in your towns, in the automobile industry, it occurs to me, can do a great deal to help this. You must get together in your organizations more, in your automobile organizations.

"Instead of talking about the most beautiful lines or the most beautiful this, that or the other thing, why don't you get together and pay for some copy of the right kind that will point out to the people what automobiles mean to them?

"If your dealers in Akron, for example, got together and you had 25 of your leading doctors sign a statement that says that the automobile that they have been using for the last 8 years has quadrupled their efficiency and they now see 20 people a day where they used to see five—that is the kind of advertising the country needs to-day about the automobile business. We must make the people see what a wonderfully economic thing it is.

"Gentlemen, if the Congress of the United States should pass a law that after to-morrow no more automobiles would be allowed on the highways or the streets of the cities they would set the country back 50 years economically, and they would be sure then that we would lose the war from within and not from without.

Read This Argument, Men

"It is often said to appreciate what value a thing is to you, you must be put in the position of doing without it. Whenever a man comes and says to you that an automobile is a luxury, tell him as I told a man in Washington the other day, a high official: He said, 'Mr. Chalmers, I do not think automobiles are

necessary; I believe they are non-essential at this time.'

"I said, 'You use one, don't you?'"

"He said, 'Yes, I do.'"

"I said, 'Well, now, suppose I came along to you and made you a proposition like this: I will take that car off your hands at what you paid for it if you will sign a contract with me that you will never ride in an automobile during the period of this war, would you do it?'"

"No," he said, 'I have to have one.'

"Yes, you have to have one, but you want to deny the other man in a similar position the privilege of getting one."

"That was the situation. He had to have one and he did have one because he was going around the departments, and after all we are proud to talk as business men about this thing of efficiency, and we talk a great deal about it. What is it?"

"After all, how did you make your money? You made it out of three things. You made it out of knowledge you have of the particular line you are in. Second, coupled to that, you make it out of your ability to use your knowledge, and the third is the time you have to apply to the other two. That is about all there is to it."

"If I can double your time, get you some place in 8 minutes where it used to take 28, I have made you three times more efficient. I have made it possible to use that ability and that knowledge three times as much as you otherwise would use it."

"So that is the idea of this thing. It is to get the right kind of publicity. Now, this is true. *Every man pays for the thing he needs whether he buys it or not.* If you need an overcoat you will pay for it whether you get it or not. You may pay for it in doctor bills; you may pay for it in a cold all winter. You may pay for it in crippled efficiency. You will pay for it. *You had better go down immediately and buy it, because you will pay for it in the end, anyway.* If you need an adding machine in your business and you do not buy it, you pay for it just the same."

You Pay for It Anyway

"The same thing is true of an automobile. If you need an automobile or a passenger car in your work, you pay for it whether you buy it or not. *You pay for it.* We want to get those thoughts across to the people. Instead of your salesmen being discouraged, they ought to feel encouraged."

"Now, then, as your chairman said, there is going to be more or less trouble. I tell you, gentlemen, I think the President of the United States should do tomorrow and not the day after to-morrow this:

"He ought to do it to-morrow, he ought to conscript every man in the United States up to 50 years of age and make them all soldiers of Uncle Sam and then tell them whether they are to serve in the industrial army or in the national army in France."

"There is going to be labor trouble, not union labor necessarily. It is non-union labor just as much. This is not a time

when any man has a right to say he won't do this or that. If he does not want to work in a coal mine, if he does not want to work in an automobile shop, then let him go over to the trenches in France."

"We have got to get the spirit of this thing. We must get it, and I think we have it all over this country. I believe this 5-day shut down, if you please, had this one beneficial effect, it has waked up a lot of people in the Middle West and out West particularly who are not close to this thing."

"It has waked them up and made them realize we are at war with Germany. There is no use of our fooling ourselves."

"I personally think you can look for an order from Washington restricting passenger traffic, and I would not be surprised if they shut down all passenger traffic in this country for one week, and I hope to God they do, because, gentlemen, if we could have a suspension of passenger traffic for one week, can you realize what an immense amount of freight could be moved by those engines?"

"However, I hope they will notify us in advance so that we can get to where we want to be and stay there. We would not necessarily stay there because we have automobiles and we can go up to 500 and 600 miles."

"But isn't it better to have those orders for one week's duration and put all of the locomotives into service toward lifting freight and untying this thing than to go along 5 or 6 months in this crippled condition?"

"These are drastic things and these are drastic conditions."

Solving the Coal Problem

"Personally, if I had charge of the coal administration I would not have permitted it to come to this present condition, but that is not necessarily a reflection of the men in charge. I do not know all of the circumstances, but we know this, *that there is no possible excuse, gentlemen—I am measuring my words and I know what I am talking about when I say this—there is no possible excuse for a repetition of it because they told me in Washington at the Fuel Administration that it is estimated that we can take out 600,000,000 tons of coal a year for 2000 years and not use up our coal supply in this country.*"

"Now, gentlemen, it comes down to this point then: It comes down to men. Men. Not even transportation. I would conscript every man up to 45 or 50, and here is where our great industry comes in."

"We should have dealt with this fuel crisis before this thing broke."

"I believe if they would commandeer 100,000 trucks in this country, which is possible, that they would go a long way toward solving this coal proposition—commandeer them. We are at war. We have a right to commandeer anything if this Government has the right—and thank God it has—it is not a right—it is a privilege, to send your boy and my boy over to France. Will any American say it hasn't the right to do with physical property what it pleases?"

"The 100,000 trucks would help to do what this great industry is bidding for the chance to do. This industry gave this country Howard E. Coffin and Christian Girl. They have not gone down for the dollar, but because they have the spirit we all ought to feel this way."

Commandeer the Trucks

"Every man in this room who is in this automobile business must feel that he is doing his duty. We cannot all go to France because of the age limit and for other reasons. This war is not one-sided. It has to be divided about 75 to 80 per cent industrial and about 20 to 25 per cent actual fighting."

"The man who stays in his place here and remains sober, and does his daily work, with the God above looking on him, doing it conscientiously, is producing more than he ever produced before, is supporting every endeavor, is subscribing for Liberty Bonds, to the Red Cross, and all the others, is just as much a proper and a faithful citizen of this great Republic as if he put on a uniform and carried a gun in France."

"So let's do our duty. Let's not get down in the mouth about this automobile industry. Your duty is to sell cars. *Your duty is to keep supplying this demand for not a non-essential at all, but for an essential.*"

"I do not believe there should be any such things as essentials and non-essentials."

"So we must go away with this spirit: DO NOT BE DOWNHEARTED WHEN YOU GO TO THE NEXT MAN AFTER THIS. DO NOT FEEL LIKE APOLOGIZING TO A MAN WHEN YOU APPROACH HIM TO SELL A CAR. APPROACH HIM AS YOU DID HERETOFORE BECAUSE YOU ARE RENDERING A REAL SERVICE IN DOING SO."

"Why, if all men had that attitude with reference to their business we could not win this war at all."

"And for God's sake, men of this country, do not talk about peace. We can have no peace with that bunch in Germany to-day. Did not Russia try it the last four weeks? What kind of a peace did they want to give them after all? Annexation of all the territory they had and a standing army to remain there indefinitely."

Forget About Peace

"No, gentlemen, leave the peace proposition to those who handle it and the President of the United States is certainly handling the diplomatic end of this business in an admirable way."

"Let's not talk peace. Let's go on, every man to his job, shoulder to shoulder. Let's forget peace, let's forget all strife among ourselves because we are fighting now so that the orator in 40 and 50 years from now can stand up and tell our children and their children the acts of heroism and the great sacrifices we made, as did our forefathers who went down in order to give this wonderful country we enjoy to-day."

"We won't get the benefit, but our
(Continued on page 39)

Fuel Order Shuts Up Factories

Nearly Every Plant Closed, Though a Few Having Government Jobs Continue

DETROIT, Jan. 18—Like a bolt from the blue came the edict from Washington stating that factories must close down in order to conserve the fuel supply. The first effect on the manufacturers was astonishment in the fact that the fuel administration would consider going to such an extreme, but in every case statement was made that strict observance of the rule will be followed, providing the move seemed necessary and patriotic and authorized by the Government.

A meeting of the manufacturers was held in the Board of Commerce yesterday afternoon, and it was the opinion of the representatives that the newspaper report published was not authentic and hence should not be observed until confirmation was officially received from Washington. Such confirmation was received at midnight and to-day plants, with few exceptions, are closed down.

The edict will cause immediate loss of millions of dollars. Practically all the plants are equipped with sprinkling systems which are impossible to shut off. The amount of coal saved by dropping the heat to a temperature just above freezing is practically negligible, and in many instances the closing down of the factories will cause a greater increase instead of a decrease in the coal consumption.

Some Peculiar Examples

As an example of this is the case of the large wheel-making factories and wood-working plants. When in daily operation these plants are operated and heated from the burning of the wood waste resulting from the manufacture. One large plant of this nature will use three times as much coal closed down as it would when operating because of this, because when manufacturing stops the production of the wood waste stops and coal must be used to keep the water and steam pipes above freezing temperature.

Typical of many of the motor car plants is that of the Hupp Motor Car Co. For 15 minutes in the morning city power is used, and after that the power is derived from gasoline engines. Through the company's own generators an excess amount of power is developed, and every month the city power company owes the Hupp company for power turned back into their lines. In the Cadillac Motor Car Co. plant all of the engines being tested on dynamometers are developing useful power. Similarly throughout the industry, closing down will eliminate sources of power, wasting them rather than conserving them, and

the entire burden will be thrown upon coal and the people.

In Detroit alone 225,000 people will be thrown out of work at a total cost of almost one million dollars per day in wages. Many of these are living a hand-to-mouth existence, buying Liberty Bonds and thrift stamps. Alvin McCauley at Packard states that this will be almost ruinous and does not see how the employees can weather the storm.

The Buick Motor Co. closed down its plant last Saturday on a coal conservation movement of its own. For some time past this company has been concentrating upon obtaining coal for the city and hoped that by closing down the situation might be relieved. Yesterday several departments were opened up for the simple purpose of removing the men from the streets and providing them with wages. With no money coming in, no coal in the homes, certainly the situation is very dangerous.

Overcoming the Handicap

The Reo Motor Car Co. is planning to run on a 10-hour-a-day basis instead of a 9-hour basis after the one-day-per-week shutdown period is reached; hence the total time of 50 working hours instead of 54 will be possible.

The above is only a tentative plan and may not possibly be followed.

With few exceptions the plants throughout the entire state are closed to-day. Among these are Ford, Dodge, Cadillac, Hudson, Paige, Chalmers, Maxwell and the Hupp. One exception is the plant of the Continental Motors Co., which is engaged in extensive work for the Signal Corps and the Quartermaster's department. Whether other plants engaged in similar work will operate in those departments is a question.

Though strongly opposed to the edict, because they do not see its possible effectiveness in relieving the situation, and because it is feared that the results will be greater than any possible benefit, the manufacturers feel that they should set an example of patriotism and are hence obeying the edict. The situation is deplorable and the remedy worse than the disease.

Plants like Packard, Ford, Cadillac, Fisher Body, General Aluminum & Brass, Detroit Copper & Brass Rolling Mills, and the American Car & Foundry Co. were included in the exemptions announced by the Fuel Administration in Washington late Friday. All of these companies have one or more departments on important war work and these departments alone are in operation to-day.

There are others, however, doing war work which were still closed in all departments this morning. These included local plants working on parts for the Liberty trucks, such as Continental and Timken.

About 75 per cent of Detroit industries were shut down Friday, and on Saturday morning virtually 90 per cent of the city's industries adjusted themselves to the schedule imposed by the Fuel Administrator. In accordance with the protest meeting held at the Board of Commerce Thursday afternoon, about 40 shops, employing large numbers of men, went to work as usual Friday morning, but when an order was sent out by Governor Sleeper declaring that it was unpatriotic to disobey the edict and that the state would enforce it, these also fell in line.

The Willys-Overland factory at Toledo is closed except in the departments doing government work. The Elmira plant is running night and day, and the Elyria plant is also going ahead with its airplane work. The number of men laid off by the Willys-Overland Co. is 8000. The coal saving of this company amounts to about 200 tons a day.

Practically the same conditions apply to the Buick company in Flint, where all but the aircraft men are laid off, making a total of about 12,000 employees out of work for the 5-day period. This company uses normally 600 tons of coal a day, of which 42 per cent will be saved through closing. The general coal situation in Flint is probably as bad as it is anywhere in the country. There are 4000 families practically without coal, and there is no coal anywhere near the city and no cars en route. The schools have been closed for a week and the coal taken from the cellars and placed into the bins of private users. This company has voluntarily reduced its production by closing its plant over a week ago to conserve fuel to meet the serious situation obtaining in Flint.

Some Plants Start Again

The Ford Motor Co. started Monday operating in the departments where government work is under way, the most important of this being the department concerned with the manufacture of cylinders for the Liberty aircraft engines. This highly important work was closed down with the rest of the factory because the Ford company did not get its exemption order until late Friday night, when it was too late to get the force together to start work again Saturday.

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Car and Truck Drive-Aways Can Save the Country—II

Dealers Must Plan Now for Drive-Aways

SUPPOSE, as we said last week, that the railroads cannot transport motor cars and cannot transport motor trucks, then your big problem is to estimate what it is going to cost you not to do business. Here is a specific, workable plan to make you independent of the railroads. Read the story.

THE probability of having to drive away all motor cars and all motor trucks from the factories to dealers and distributors increases every day.

The order of the Fuel Administration shutting up all industries except those engaged in war activities and those on foods, etc., suggests what important measures may be looked for from day to day. Last week over 300 ships in New York harbor, sailing under the United States and Allies' flags, were held here for want of coal. This is an example of how badly our national transportation system has broken down, and how essential it is for every citizen to do not his bit, but his *all*, in this crisis.

A message this week direct from France tells what unusual efforts she is making to help out her railroads in the present war. Starting a few weeks ago, many of the French army trucks are being used in commercial work as well. It has been worked out this way:

A convoy of army trucks moving from seaport up to the front is laden with army supplies, men, and everything else needed. These trucks carry men back to Paris, but from Paris to the seaports, or to other cities in the direction of seaports, they carry loads of merchandise which otherwise would be sent by train or in other ways.

How Our Allies Conserve Energy

For example, there is the city of Lyons, which is 300 miles from Paris. The movement of commercial merchandise not intended for the army is carried by convoys of motor trucks for this distance. *In a word, France is not allowing one of her army trucks to make an idle trip where it is possible to use that truck to carry merchandise.*

That is the rule of war, and if it is necessary to take such action in times of war in France it is still more necessary that we, as their ally, take such action at home. In France to-day it is too inefficient to run a single truck on the roads without it carrying its full load or some form of useful load.

Some of you dealers may say that it is too costly to deliver by motor truck, or that it is too costly to drive cars or trucks overland from the factory to the dealer. We suggest that you get rid of such misconceptions and get into the new war regime atmosphere.

Do not forget that to-day you should think of the cost

of NOT DOING BUSINESS just as much and perhaps a little more than you have been thinking of the cost of DOING business. Get the idea of looking at business, in these most critical days of the war, in this new aspect, namely, the cost of not doing business as well as the cost of doing it.

In peace times we never think of the cost of not doing business, but the coal administration order last week gave us a little taste of what it is costing not to do business. In many places the cost to the community for shutting down plants due to a shortage of coal is making coal cost \$225 per ton. That is one example of the cost of not doing business. There are places in the country to-day where it is costing near \$300 per ton for coal due to not doing business.

Estimate Cost of NOT Doing Business

Supposing, as we stated last week, that the railroads cannot transport motor cars and cannot transport motor trucks, then your big problem is that of correctly estimating what it is going to cost you not to do business.

You have then two chances before you—that of doing without cars or trucks, or driving them from the factory to your place of business at a higher cost.

If the buyer objects, you can pass the business argument along to him. Let him ask himself what it is going to cost him to do business without the motor truck that he should buy from you. Ask him to answer if it is cheaper for him not to buy a truck that has been driven overland from the factory, or to gladly take such a truck.

Put the question up to him as to whether he can afford not to do business at all or to pay the war price of doing business.

There is little doubt but that every business man will take the same view of the matter, and if he has not vision to see the question that way then it is up to the dealer or the distributor to put the facts in the case before such a customer so that he sees the truth.

Last week we spoke of the desirability and the necessity of dealers laying their plans at this time for the complete necessary organization for driving away all of the cars and trucks required during the coming season. There are many more possible suggestions that might be considered by such an organization.

This question is one that calls for a national dealers' organization that could be the directing brains in the whole movement. It also calls for live dealers' organizations in different cities. It also calls for community dealer effort in certain sections of the country, such as New England, the Twin City area, the Southeast, etc.

The working out of the plans for a complete driveway will call for co-operation among rival factories. It will call for co-operation among dealers who have been rivals, and have not co-operated with each other as they should have. It will call for the breaking down of these old pre-war prejudices. It will call for co-operation with your keenest business rival, the man whom in the past you avoided doing business with, which is now working to your own detriment as well as to his.

Consider briefly a few examples of what co-operation might do very efficiently in a great driveway system such as will certainly be necessary during the coming season.

Suggestion 1. It will be necessary for drivers to handle cars of different makes under certain conditions. For example, Overland drivers leaving Toledo for Milwaukee, or the Twin Cities, might to advantage drive automobiles from Nash or Mitchell factories when they are coming back East. This would let the driver be driving both West and East, instead of his driving West and making the return trip on the train. There is no reason why this interchange of drivers could not be worked out most effectively. Franklin drivers delivering cars to St. Louis should be utilized to bring back Moon or Dorris cars. Indianapolis drivers could drive cars made in Indianapolis to Cleveland, Toledo, Detroit, Flint, and that entire zone, and drive back cars made in the Detroit zone to Indianapolis, or cars that are to be forwarded to the Southeastern section.

All Drivers Might Be Pooled

Suggestion 2. It looks as if a pooling of drivers should be desirable. It was necessary for our railroads to pool coal cars last summer, and had it not been for this action there would be a much greater shortage of coal than exists to-day. It was a patriotic, good business act on the part of the railroad people to pool their interests in this way. It would be an equally good business act for dealers to take a similar stand when the time comes. The great business rivalries of the past must cease. To-day it is not a case of competition being the life of trade, but rather co-operation being the life blood of industries. It is not so much a case of what it costs us to do business, but rather what it costs us not to do business.

Suggestion 3. Wonderfully complete organization will be necessary for a driveway between the manufacturing cities in the Detroit zone, including Pontiac, Lansing, Flint, Toledo, and Cleveland, for convenience, and such a great gateway as Chicago, where the streams of traffic will divide, some going northward to supply Wisconsin, Minnesota and the Dakotas, some continuing straight westward to supply Iowa and Nebraska, and some bending southward to St. Louis and that zone.

In such a congested area as that between the Detroit zone and Chicago the highest form of organization will be necessary because that portion of the route would take on a national aspect rather than merely one serving the Chicago zone.

It might be necessary to schedule rigidly the length of a day's trip, to route different factories over different roads, and to adopt a railroad system of operation. It would be better business to handle the drivers as the railroad handles its engineers. The New York Central does not start an engineer from New York and run him to Chicago, but rather keeps each engineer making short and frequent trips over the same division.

To apply this to a Detroit factory: If it were driving 200 cars a day from the factory to Chicago, there to be distributed as necessary, it would have one group of 200 drivers who would work only over the first stage of the route, which might be 150 or 200 miles, as necessary. They could drive their cars over this route by day and return to Detroit by train or other means at night. At the end of their day's trip their cars would be turned over to another group of 200 drivers, who would take them over the second stage of the journey, which might be to Chicago, or beyond, as necessary.

An advantage of this system of driveway would be that a driver would soon learn every detail of the road over which he drove. He would thus save the car many needless bumps and jars. By becoming familiar with the road he would make better speed, with less wear and tear on the car. He would learn the road, he would learn every turn, he would learn every bad bridge, and, in short, would soon become as familiar with his part of the trip as the locomotive engineer.

Suggestion 4. It would be necessary to signboard all of the roads to be used in these driveways. A few months ago, when France was moving her army to stop the German drive on Italy, thousands of motor trucks were used to transport the army supplies from France to Italy. Some of these trucks traveled only a few hundred miles, but others that were on the French western front, that had to travel to the Italian front, covered over 1000 miles. Every turn on the road was specially signboarded. There were signs telling the drivers when they should shift into low gear because of the long descents. There was one descent of over 15 miles that required constant use of the engine as a brake. If it were possible for France in an emergency to accomplish such a wonderful feat with motor trucks over such distances under the stress of war, how much easier should it be to accomplish almost miracles over our highways in times of peace.

Cars Must Be Protected on the Road

Suggestion 5. Many devices can be resorted to to preserve the finish of motor cars while being driven overland. There is no reason why some form of tarpaulin might not be made which would practically cover all of the car during the day, thus protecting the entire body work from mud or dust. This tarpaulin could so be made that the load of supplies carried in the car, such as extra tires, or other spares, would not in the slightest injure the upholstery or paint. This tarpaulin would serve as an efficient cover for the vehicle at night as well.

Suggestion 6. When the French army was moving to the assistance of the Italians, each truck had a trailer attached, and carried enough gasoline for the entire journey. This worked havoc with the gasoline supply throughout France, but had the desired result. The trucks were divided into trains of 20 trucks each. With each train there was a kitchen trailer and a repairshop. There were from 80 to 90 men on each train. Arrangements were such that the meals were served from the kitchen trailer without stopping the trucks. This is but an example of what might be worked out in driving vehicles from factories in America.

Suggestion 7. It may be necessary to organize barracks in which the men are to sleep at night. On the French movement to Italy night stops were made where suitable barracks accommodation might be had. It might be necessary to select sites for night stops and erect tents, or temporary buildings, for such. All of the details for this could be readily worked out, and such accommodation would only be necessary along the main highways, where the numbers would be too great for the hotel and garage accommodations of the places passed through.

Winter Business

Think
Work
Succeed

Winter Business Will Bring Spring Profits

Now is the time to go after the farmer, the country merchant, the small-town man—all those whose tractors, cars and trucks have been put out of action for a season, but who will shortly be on the job again for another nine months. Are you ready? Go!



Cold Weather Made Profitable

as the occasion requires. Remember that these goods are seasonable and must be sold during the season. Your jobbers cannot afford to accept this class of goods for credit after January 1st. Bear this in mind, whether you buy of us or of some other jobber. Buy with the idea of selling.

Notice to Our Trade

It does not pay to keep men on the road calling on the smaller towns during the cold winter and as we study economy and overhead, we are taking this into consideration. If you do not receive the usual call from our salesman do not think that we have forgotten you. Send us your orders by mail and if you need a representative of this company we will see that you are called upon.

The above explanation will make clear to you our reasons for the issuing of this booklet. Thanking you all for the liberal patronage that we have received during 1917 and assuring you that we are looking for a larger portion the coming year, with kindest regards.

Very respectfully yours,
E. A. BOWMAN CO.,
E. A. Bowman, Pres.

How Bowman Is Boosting Winter Business

Here are some good thoughts from the Winter Business Bulletin of the E. A. Bowman Co. of Detroit. The bulletin itself is full of winter specialties well illustrated and described.

The idea of calmly hibernating during the winter months awaiting the spring sunshine to once more start the flow of accessory "sap" has never appealed to E. A. Bowman, president of the E. A. Bowman Co., a wholesale accessory house in Detroit.

This firm always prepares an array of seasonable merchandise that any dealer may stock and sell, keeping up his volume of business as well as maintaining his reputation as a live wire.

It has been the custom of the Bowman company for a number of years to gather together winter goods and to display them to the trade in simple, yet effective, circulars like this. It helps focus the dealer's mind on Winter Business and it opens the door to profits.

Make Repairs Sell Cars

GET the names of all car users in your territory and get their repair work. Don't just ask for it. Get it! Circularize! Write letters! Follow them up.

You will find that persistence pays.

Tell them why their work will be especially well done in your shop—and prove it. Send form letters

to every one and to those you know write personally.

And have in mind this fact—that in each new repair customer you have not only a car prospect, but a new advertising medium.

Every customer talks. See that what he says about you is good talk.

Build Up a Tractor Business

TAKE a list of all the farmers you can reach. How many have tractors? How many have not and if not why not? Those who do will need to have them overhauled and repaired before spring. Tell them so! Tell them why! Tell them that you are the man for the job. Send letters to all of them. They will also need supplies and will get them where their work is done.

Go after the farmer who still uses horses and prove to him that he is wasting money. Then sell him a tractor. Thomas A. Edison says that a horse is too expensive for anybody to keep. Think of the

crops that could—and should—be raised on pasture land! Compare the cost of horse feed and tractor fuel. Write to all these prospects and FOLLOW THEM UP!

Perhaps you have not a tractor agency. Perhaps you would make more money if you had. More tractors are being used each year. Look into this! Go to the shows! Get literature! Study the tractors and build up another profitable department of your business.

Do this now! There is no time to lose!

A reminder that "Now is the time" has been sent broadcast by the Morris Adler Co., Quincy, Ill. This is printed on a very good blotter, which helps to save it from the waste basket after having been read, and gives the thought a chance to sink in.

MORRIS ADLER SUGGESTS— NOW IS A GOOD TIME TO

Put new Rubber Connections on your cooling System—
Clean, examine and adjust clutch—
Have universal couplings cleaned and repacked—
Examine your ignition and starting system—
Overhaul your motor, clean out carbon; regrind valves—
Drain transmission box; clean and examine all gears and bearings—
Have differential gears cleaned, examined and refilled—
Take Springs apart; clean and oil them—

No matter what car you own, you can rest assured that we will do our utmost to help you. Call at 618 Vermont Street, or phone 264 and H. B. Herbert or Morris Adler will give you their best attention. We have a very interesting Battery proposition. It will pay you to ask about it.

MORRIS ADLER COMPANY

Distributor for DODGE BROTHERS MOTOR CARS—HUDSON MOTOR CARS
ACCESSORIES, TIRES and PEMALIFE BATTERIES.

618 Vermont St. "Service with a Smile" Phone 264.

Winter Bargains in Repairs

The fixed-price plan for repairs works well when the shop is not rushed with business. The Foster-Stalman Co. of Denver has found that it brings good winter business. They sent these two lists to 500 Dodge and 500 Hudson owners and got results. The idea is that these owners are not used to a flat price for repairs and it looked good to them.

Special Repair Prices

Good 30 Days Only

Foster-Stalman Co. 845 Broadway
Grind valves, clean carbon, ream valve seats, face
valves and adjust tappets for - - - \$3.75

Change motor oil, transmission, differential and
clutch oil, refill with fresh oil, turn down and
refill all grease cups for - - - \$2.75

Reline foot and emergency brakes with the best
brake lining on the market for - - - \$14.00

Graphite springs and take up on spring
shackles for - - - \$2.25

Take out squeaks, rattles, new bumpers, tighten
up all over - - - \$2.50

Special Repair Prices for 30 Days

HUDSON SPECIALS

Grind valves, clean carbon, ream valve seats, face
valves and adjust tappets for - - - \$3.75

Change motor oil, transmission, differential and
clutch oil, refill with fresh oil, turn down and
refill all grease cups for - - - \$3.00

Reline foot and emergency brakes with the best
brake lining on the market for - - - \$15.00

Graphite springs and take up on spring
shackles for - - - \$2.25

Take out squeakes, rattles, new door bumpers,
tighten up all over for - - - \$2.50
Foster-Stalman Co. 845 Broadway, Denver, Col.

Lessons That Are Taught by the Philadelphia Show

THE Philadelphia show is the first large dealers' show of this season. A study of the exhibition brings out certain facts that are of interest to all other dealers and show managers. Read this story and see if there is not a thought that applies to the show you are about to hold.

By Ray W. Sherman

PHILADELPHIA, Jan. 19—The Philadelphia Automobile Trade Association has just held its seventeenth annual automobile show. It is held under conditions such as the trade has never known. There is no need of discussing these conditions here. The thing that is of interest is how these conditions have been met and what new thought the Philadelphia show brings forth for other dealers in other cities of the United States. Many shows are scheduled. Their success is a business necessity. These points predominate.

1—The show must draw a crowd.
2—The exhibitors must make a greater sales effort.

3—Dealers must begin now to plan on driving cars away from the factory.

So far as getting the crowd is concerned the Philadelphia show has been about on a par with the New York show. The attendance is about 60 per cent of what it was last year.

One reason for this may be that the number of trade tickets distributed last year is not being given out this year and this brings out the suggestion that there should be more free tickets used this season.

Must Get a Crowd

There are many arguments as to why the general distribution of passes and free tickets is not a good thing for shows. It is contended that this reduces the receipts of the box office, but this does not seem to be a year when the box office should loom up too big in the eyes of the show management.

The one great factor in the success of any show is the crowd and if a crowd cannot be obtained the show is not a success and if the show is not a success, the entire trade in that city is injured.

Therefore, every effort should be made to get in as big a crowd as possible. One way a crowd can be brought in, of course, is through advertising. Another way is through the use of passes, regardless of whether these passes are paid for by dealers and distributed by the dealers or given free to the dealers and scattered all over the town.

There should be some method of dis-

tribution of tickets. There should also be a distribution of tickets to dealers and car owners and prospects throughout the territory that the city feeds. *Special effort should be made to swell the attendance on the first few days of the show.*

Thursday the Best Day

The figures at Philadelphia show that the crowd will begin to come in Wednesday, Thursday and Friday and that Thursday will be about the best day of the week. Knowing these facts before hand, managers of other shows should be able to take steps to increase the crowd on the opening days.

Also so far as the reduction of profits by the use of passes is concerned, it may be stated that it is not good business for a show to have a lot of profits on its balance sheet, because they are false profits and the Government is likely to take them on the ground that they are excess profits.

The principal object in having dealers or members of the association pay large amounts per foot for space in the show is to guarantee the expense of the show. Then after the show is over they get a good deal of this money back, but when it starts back to the dealer the Government says that it is a profit and excesses a certain amount of it, which obviously is not the intent in a situation of this kind.

So far as the plan of paying for the space is concerned, however, the money really is in the guise of profit and unless the plan is changed to that used in Philadelphia, the dealers stand to lose unjustly a large amount of money.

In Philadelphia the dealers are charged so much per foot, but the amount charged is only 20 cents—just about enough to cover the expenses of the show. If there is anything left the dealers will get it back and if there is not anything left and there is a debit, they will have to produce a little bit more money to meet expenses, but the profit in any case will not be so large that the dealers would desperately worry about any taken by the income tax collectors; therefore a show management,

it would seem, should not worry too much about a reduction in profits. It should aim to cover the expenses of the show and not much more than that; but above all, it should aim to get a big crowd.

Furthermore, the contention that a big crowd interferes with show business and that the crowd includes many who never would buy a car is not justified this year. It is all right to advance this argument in a normal season when people flock to the shows in great numbers, but this year they are not flocking in as great numbers as they were last year and the absence of the nonbuying show visitor may do more to harm the automobile business than his presence would in other years. Just how this matter of getting a big crowd should be handled is pretty much a local affair and is up to each local manager.

Pre-Show Effort Needed

The dealers also should make a greater sales effort before the show, during the show and after the show. Before the show there should be more circularizing and sending out of form letters than is done in normal times. The prospect list should be intensively cultivated, dead wood should be thrown out and every effort should be made to get into the show those prospects who are considered live. After they are in the show the dealers should plan to get in touch with them if possible and to follow them up while the show is on.

A systematic plan for the handling of work in the exhibit should be laid out. It should be the duty of some salesman to stand in certain positions in the exhibit and meet people who enter it just the same as the bell boys in hotel lobbies have positions and the whole line moves up one whenever the boy at the head of the line goes to get a bag. Without a plan of this kind an otherwise good prospect may get away and this not a year when anybody can afford to let a good prospect escape.

It would be well to have in each exhibit a small business office with a stenographer. Of course, she may be the only stenographer a man has and she

may be needed at the salesroom, but it does seem that during show week there is no place she is more needed than in the exhibit and some man who is in charge of sales should be there also.

The arrangement of exhibits is important and it is handled in an excellent manner in Philadelphia. In a great many shows of past seasons, and especially in the Philadelphia show, cars have been crowded into the exhibit until they were so close that the entire show looked like a floor in a typical garage. There was a long aisle down through the middle and that was about the only open space in the place. Everything was crowded in so thick that a red hot prospect could not see a car in an exhibit no matter how thin he might be.

Show Is 100 Per Cent Better

This year Philadelphia did about a thousand per cent better. It laid out the plan of the show floor and marked the spaces. The show committee then marked upon each space the number of cars that this space should hold for good display purposes. An effort was made in each instance to have plenty of open space in the center of the exhibit. A man by looking at the floor plan could see exactly the size of space he was going to have and could also see how many cars he could have and practically the position they should occupy for good display purposes. He did not have to worry about how many cars he could put in. *The show committee told him how many he could have when he bought the space and showed him just about how he should arrange them.*

Often in other years MOTOR WORLD has shown plans of shows, pointing out the positions of cars. These sketches were made after the cars were in place. In Philadelphia this year the show committee drew up a similar map *beforehand* so that a plan made of the cars of the show would correspond with the plan that was made by the committee before the show was opened.

One of Best Shows Ever Held

The result is wonderful.

The Philadelphia show is one of the nicest shows that has ever been held in the United States. It is good from a decorative standpoint, which is entirely another matter and the exhibits are fine. There is plenty of space at each exhibit. The cars are well placed. The show is open and airy. There is a feeling of comfort if one wanders through the exposition building and Philadelphia should be congratulated upon having taken an enormous stride towards good merchandising.

Philadelphia used to have a rule which prohibited a dealer putting anything except cars into his exhibit. This is a rule against which MOTOR WORLD has protested many times and this year it has been to a large extent withdrawn. The result is that a number of dealers have added very artistic touches to their exhibits. They have put rugs in the center of the large bare spaces and some of them have used tables to hold their lit-

erature, the tables being placed on each rug.

The Winton company not only has a rug but has a small floral fountain with an electric light in the center of its exhibit. It is one of the best exhibits that has ever been shown in a show and yet the added decorated touch is so simple that it is surprising other dealers have not gone to this same extreme.

Why Not Use Decorations?

A. E. Maltby, the Winton manager who is also the association president and chairman of the show committee, said that perhaps his fountain was not strictly in accord with the show rules, but that he believed it is a type of merchandising that should be injected into the show and that he would be in favor of having each dealer do something of this kind every year hereafter.

The suggestion is made, and it is a good one, that dealers should be required to introduce decorative touches of this kind into their exhibits—consult the architect or decorator who has the show work in charge, or else consult someone who is an authority on artistic work of this kind so that the decorating will not be overdone.

The objects of the show rule against decorating in many shows have been to prevent any one dealer from hogging newspaper publicity by putting on an exaggerated piece of decoration. Exaggerated decorations of this kind would spoil any show, but a little of it will make any show several thousand per cent better than many of them have been in the past.

Sales Are Fairly Good

Dealers at the Philadelphia show invariably say that sales are fairly good, but they also will add the proviso that cars are hard to get. Some of them tell about cars that have been a long time in transit from the factories and some say that in a few instances they have driven cars from the factory to Philadelphia.

This is an exceedingly important situation. Dealers in every city should begin to pay attention to it. It is not the proper thing to wait until the weather is warmer and the roads are good before this drive-away matter is given consideration. Plans should be made now so that when the first warm days come, the dealer can get down to his factory with a squad of men and begin to drive cars overland to his place of business. If he doesn't do that, he is likely not to have any at all to sell, and if he doesn't have any cars to sell, he is simply wasting his time and money if he spends it in taking orders. MOTOR WORLD has told in previous issues how the Buick man in Atlanta, Ga., has driven a thousand cars from Flint and other stories will appear in coming issues on this same subject.

The dealer should be prepared for a good business on enclosed cars, especially the convertible type. Dealers at the Philadelphia show say that the touring car is pretty much out of date as an exhibition product. Prospects who come into the exhibit and ask about cars,

invariably ask about the enclosed models and especially sedans. Wherever there is a convertible type shown in which the entire side walls come out, that is the model which receives attention.

Salesmen who are in direct touch with this work say that the old idea that a man couldn't get fresh air unless he had a touring car is pretty well exploded. They say it was nothing much more than a notion anyway, and that any man who has ever driven an enclosed car will never go back to a touring car.

Sedans Most Popular

The chauffeur-driven type is not so popular except in such high-priced lines as Pierce-Arrow and Locomobile; in those cars prospects still feel about as they did before, but the lower-priced lines around \$1,000, \$1,200 and \$1,500 report that many buyers come to them to secure a sedan. These buyers state that they have been using high-priced cars with chauffeurs, but that the chauffeurs have been drafted or have gone into other work and they want cars they can drive themselves. They also want smaller and more economical types and cars in a lower-priced class and of a type in which the driver is enclosed and still can converse with his family. The small sedan or coupe fits in admirably here.

Salesmen report that they are working harder than ever. They say that their sales departments are sending out more form letters and circulars than before and that all of this helps a great deal in making sales. The salesmen are working more intensively and are not letting a prospect go if it is possible to sign him up.

President A. E. Maltby of the association said that the dealers who held a meeting during show week were very much satisfied with the show. They are not getting the business that they got last year, the crowd that was there last year is not there now, but results are as good as expected, if not better. All the dealers are getting their prospects and they believe these will turn into sales within a few weeks.

Sales Boom Coming

A peculiar psychological condition seems to exist. The whole country has been more or less under the depression caused by the terrible war situation. Finances have been somewhat upset and people who are able to buy cars have been holding off for two reasons: one reason is that they have not been sure of the financial situation and the other reason is that they do not need cars now as much as they will need them a little later when the sun comes out and the roads get dry and the lure of the country calls the motorist just as it has done every year and always will continue to do.

Dealers, therefore, believe that the coming of spring is going to make a big difference in the motor car situation. They believe that the country and spring time will have just as strong a lure as ever and that when the weather gets warm the mental depression among

prospects will disappear in the warm glow of the sun and hundreds of thousands who have been holding off will once more flock back to automobile row and demand cars.

The usual old-time spring rush is anticipated although possibly on not so large a scale as before. All of this the Philadelphia dealers say makes it necessary for the most intensive of sales work during the winter. If a salesman keeps persistently after a prospect now he may not get the order now, but if he keeps at it long enough and hard enough and keeps hanging on until spring comes and the sun comes out, he then has a chance of closing the sale. That is why dealers should work harder than ever now, even if results do not come immediately. The results in some form at least, are bound to come later as soon as the rigors of winter have passed and the whole nation is cheered up by warmer weather.

The Philadelphia show is absorbing the war tax. This means that on a 50-cent admission the show is paying a tax of 5 cents. The admission nets the show 45 cents instead of a half dollar. On passes, the show is paying a tax of 5 cents a day and paying it in a lump sum, which means that the man who gets a ticket good for a week has caused a tax of 35 cents to be paid to the government. Government inspectors are at the door and keep very close watch on the situation. No difficulty has been encountered, however, and the arrangements seem to work very nicely.

Decorating on a New Basis

Decorating has been handled this year on a new basis. Instead of asking several decorators to submit plans for decorating and with them a bid, this year the show management secured the services of an architect who is also a decorator. He submitted several decorative ideas; the show committee chose the idea they thought was best and then asked decorators for bids on this idea.

The bids varied by as much as 50 per cent and the result was that the show was decorated at much less than the cost that had been paid for some previous exhibitions. As soon as most of the details were in shape, the active management of the show was turned over to E. C. Johnson, who then took charge of all the detail work and has charge of the show until the exhibits are moved out of the building.

The building used is the Wanamaker Garage, which is also used by the John Wanamaker store. Mr. Wanamaker, who is philanthropic, gave three floors to the association without charge. Until he did this, they were somewhat embarrassed for want of a building. With this garage they have the best exhibition space Philadelphia has ever had.

The floor is concrete and was covered with an oil paint of the olive green color, which gave an excellent finish and made the floor look like linoleum. In fact, some who saw it thought the floor had been covered with linoleum.

Following are the exhibitors at the Philadelphia show:

AUTOMOBILE EXHIBITORS

Red Room	
Company	Exhibiting
Chalmers Motor Car Co.	Chalmers
T. S. Johnston & Co.	Scripps-Booth
L. S. Bowers Co.	Liberty
Hurley Motor Co.	Nash
Fiat Motor Co.	Fiat
Tioga Auto Co.	Nelson
Oakland Motor Co.	Oakland
B. L. P. Motor Co.	Reo
Foss-Hughes Co.	Pierce-Arrow
W. D. Shepherd	Allen
Eastern Motor Corp.	Standard
Sweeten Auto Co.	Franklin
B. L. P. Motor Co.	Premier
Oliver Co., Inc.	Daniels
Rodney S. Pullen	Milburn Electric
J. C. Bartlett	Detroit Electric
S. R. Blocksom Motor Co.	Stutz
Locomobile Co. of America	Locomobile
Philadelphia Sales Corp.	Studebaker
Buick Motor Co.	Buick
Stanley Motor Carriage Co.	Stanley

White Room	
Company	Exhibiting
Stoeve-Hannold Motor Co.	Stearns
Baker R. & L. Co.	R. & L. Electrics
Ford Motor Co.	Ford
Stewart Auto Co.	Auburn
Monroe Motors Co.	Monroe
Packard Motor Car Co.	Packard
Automobile Sales Corp.	Cadillac
Glard Auto Co.	Peerless
Winton Co.	Winton
Gomery-Schwartz Motor Car Co.	Hudson
Bigelow-Wiley Motor Co.	Paige
Fanning-Mathis Co.	Marmon
Larson-Oldsmobile Co.	Oldsmobile
White Co.	White
Murray Motor Sales Co.	Murray
J. Harry Schumacker & Co.	Dorris
Chevrolet Motor Co.	Chevrolet

L. S. Bowers Co.	Cole and Grant
Bell Motor Co.	McFarlan

Blue Room	
Company	Exhibiting
Herbert Bros.	Chandler
Biddle Motor Co.	Biddle
Samuel Earley Motor Co.	Mercer
Standard Motor Car Co.	Abbott
Saxon Motor Car Corp.	Saxon
Samuel Earley Motor Co.	National
McCurdy Brainard Co.	Jordan
Henry A. Rowan, Jr., Co.	Haynes
Thornton-Fuller Auto Co.	Dodge
La Roche Bros.	Velle
Maxwell Motor Sales Co.	Maxwell
Grieb & Thomas	Briscoe and Kissel
Parker Motor Sales Co.	King
Rogers-Lexington Motor Co.	Lexington
Hupmobile Sales Corp.	Hupmobile
Hupmobile and Holmes	
Mitchell Motor Car Co. of N. Y.	Mitchell
Overland Motor Car Co.	Overland

Accessory Exhibitors	
Traveler Tire & Rubber Co.	
Berrodin Rubber Co.	
Manufacturers Supplies Co.	
Gaul, Derr & Shearer Co.	
J. H. McCullough & Son.	
Cahall Motor Supply Co.	
J. G. Duncan, Jr. Co.	
Geo. W. Nock Co.	
J. Eavenson & Sons	
A. Geissel & Sons	
A. E. Jawer	
Pierce Auto Supply Co.	
Supplee-Biddle Hardware Co.	
H. C. Roberts Electric Supply Co.	

Newark Plans Dealer Convention

NEWARK, N. J., Jan. 21—Dealers of North Jersey, including passenger car and motor truck men, are planning a big sales conference in connection with the annual Newark show, which will be held in the First Regiment Armory, Sussex Avenue and Jay Street, Newark, N. J., Feb. 16-23 inclusive.

The following resolution was unanimously adopted at a meeting of the Board of Directors of the Boston Automobile Dealers' Association, Inc., held December 24, 1917:

Whereas, it is the desire of this Association to co-operate in every possible way with our Government to the end that we shall win the war, and as it is our paramount duty to assist in the conservation of the financial resources of the nation; and inasmuch as our Government has suggested that simplified methods be inaugurated in handling our affairs, and that capital be kept in a liquid condition, Be it, Therefore,

Resolved, That we recommend to our members that, beginning January 1, 1918, they discontinue the practice of carrying open accounts in all departments of their business.

Boston Automobile Dealers' Association, Inc.,

By CHESTER I. CAMPBELL,

Secretary

THE BOSTON AUTOMOBILE DEALERS' ASSOCIATION has decided that the cash basis is the right basis for business, and its members are displaying in their shops and offices a half-sheet poster with the above message

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Minnesota Permits Lien on Unpaid Work

Editor Motor World: I am running a garage in this town and overhauled a truck which came to \$65. I sent the owner a bill when the work was completed, but he did not call for the truck. That's about three weeks ago. In the meantime I used the truck a day for my own use and he heard about it and came over and wanted to know if I would settle the bill for \$50 for the use of the truck and, to avoid trouble, I told him to get the \$50 and take his machine. This was on a Sunday and so he gave me a check for \$50. To protect myself I wanted that check certified, so he went off in a storm and said he was going to fix me for using the truck without his permission.

The next day I found the check was worthless—no money in the bank. In the meantime I have not heard anything from the party. I sent him another bill for \$50, deducting the balance for use of the truck. The machine was not damaged in any way. What can I do now? Did I do right in settling? If he doesn't get the truck in six months, what can I do then? Can you let me know about this at once?—William Klebs, St. Louis Park, Minn.

Answer.—Of course, you did wrong in using this truck without the permission of the owner. It was a foolish thing to do, besides it is unlawful in your State. The Minnesota laws provide that persons altering, repairing or bestowing labor on any article of personal property at the request of the owner or legal possessor have a lien for their just and reasonable charges. If they are not paid within ninety days they may sell the property at auction on giving notice. They also have a lien for storage. Under the circumstances the best thing you can do is to go to some local lawyer and let him take care of this matter for you, as, of course, you cannot foreclose the lien yourself.

What Replevin Is

Replevin is a word with which all garagemen and dealers are more or less familiar. They know that if another person has a car or other personal property belonging to them they can get it back by an action of replevin.

Just what it is necessary to show and

to do to support an action of this kind, I find, is an unsolved mystery to all but the few initiated ones who have actually been through the proceeding.

An action of replevin, however, is not nearly so mysterious as it sounds, but in order to recover in such an action there are certain things a person *must allege*.

Of course, the procedure and the legal papers which are necessary vary in the courts of the different states, but the requirements in the courts of New York State are sufficiently similar to permit dealers to see the workings of this often asked for relief, so they are used as examples.

First, it is necessary to show that the person seeking the return of the property is the owner of and is lawfully entitled to its possession.

Second, the property the return of which is sought should be described so that it can be readily identified.

Third, it should be alleged that the property is being wrongfully detained, and the reason why it is being detained should be described as fully as possible.

Fourth, it should be shown that the property was not taken by virtue of a warrant, for the collection of a tax, assessment, or fine, issued under a Statute of the State, or the United States, or under an execution or warrant of attachment against the person seeking relief or of any person through whom he derives title, and lastly the value of the property according to the person's best knowledge and belief should be stated.

After the above facts are properly alleged a bond must be procured and filed for twice the amount the property is valued at.

The sheriff is then directed to take the property and hold it until the various claims to it are decided upon, or if the person who is in possession desires he can also give a bond to secure the judgment which may be recovered against him.

If a dealer can show all of the above facts he is ready to have his lawyer institute suit on his behalf.

Should He Settle?

Editor Motor World: Would appreciate it very much if you would give us a little advice on the following:

A New York man spending the summer in this vicinity brought his car to

my garage to be repaired. We did what we could, but were unable to accomplish just what was wanted. We explained this to him at the time, and he said that made no difference. It was all very satisfactory, and he paid his bill, without any question, and continued giving us his business.

The latter part of August and the first of September he started in having goods charged, amounting to a little over \$20. This consisted of a tire, gasoline, oil and other commodities. After having these goods charged he took his car back to New York and sold it. He now refuses to pay this bill, claiming that our charge on the work previously done on his car was exorbitant, as we did not accomplish what he wanted, and will only give me \$10 to square the account.

Would you advise my settling this bill for the \$10 offered or try to force collection by legal proceedings?—A. C. Banks, Sandwich, Mass.

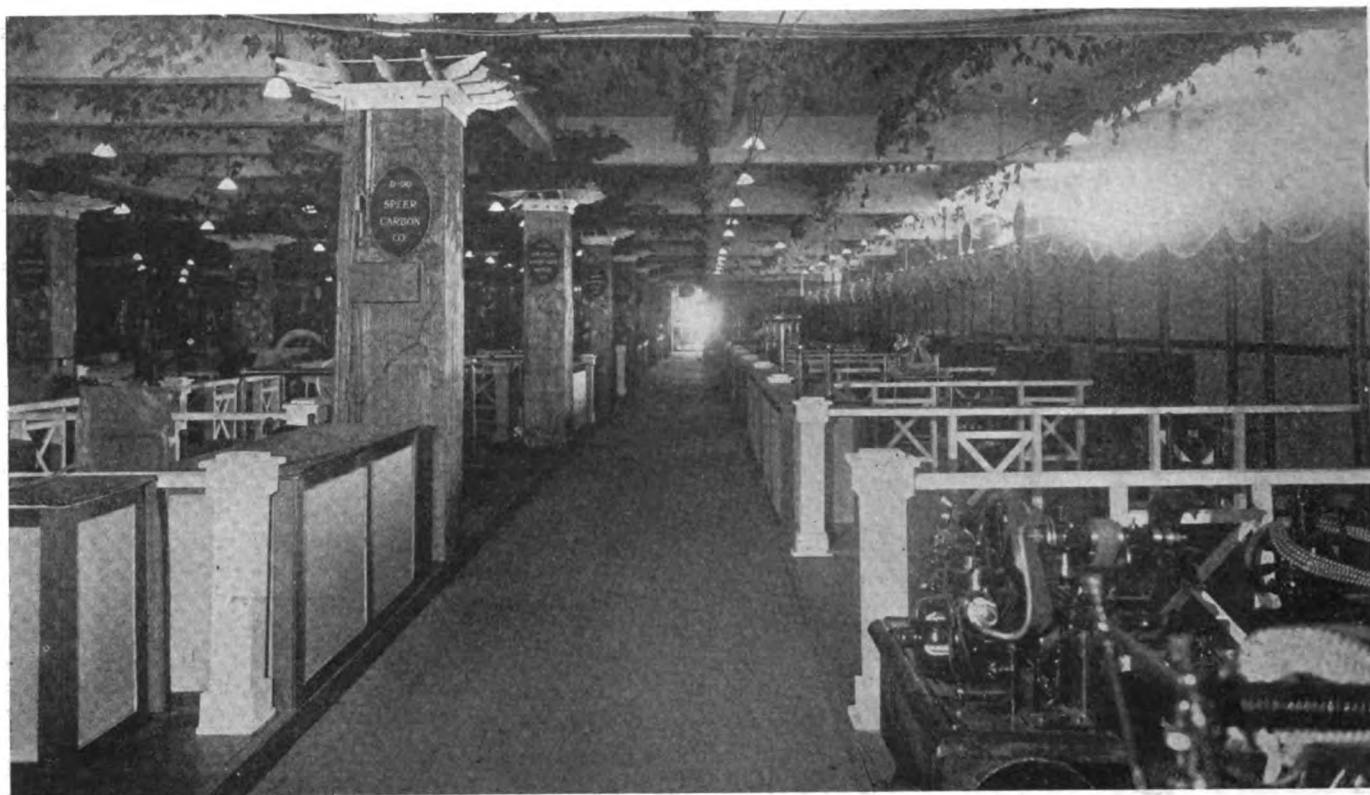
Answer.—There is no doubt that the majority of dealers would be disposed to settle this claim rather than have the trouble and bother of a lawsuit, and where the amount involved is so small they will probably come out just about as well. When a lawsuit is started, the attorney must be paid and where the suit is contested he very naturally charges more than when it is uncontested. Perhaps it would be a good thing if some one brought suit against this customer, as he might not try this stunt again then. The only question is, would you rather lose \$10 by settling or get the whole amount of \$20 and then pay out a substantial part of it after having the annoyance and trouble of suit. This is something you must decide yourself.

Definition of Repairing

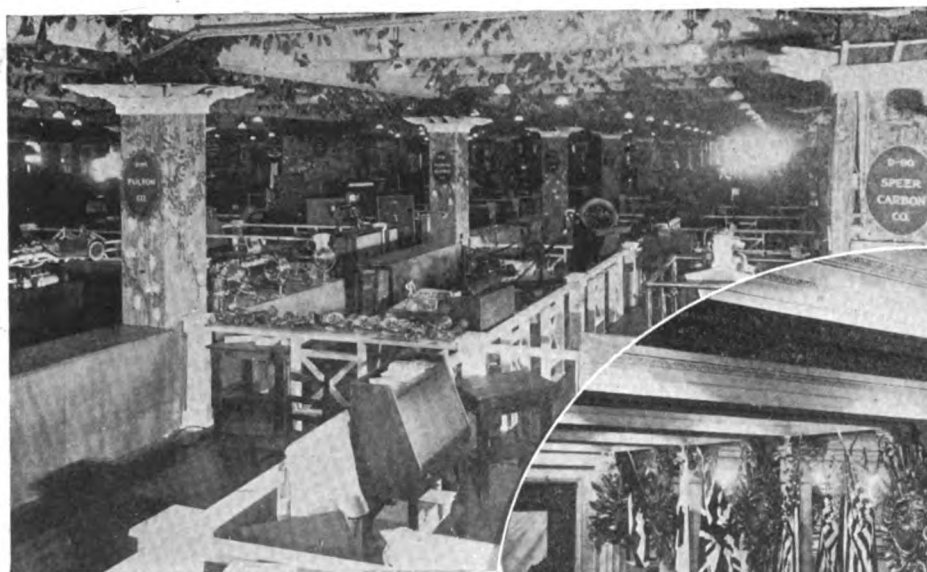
Judge Duncan of the Supreme Court of Illinois, in a case recently before him, gave the following definition of the word "repairing."

"Repairing means restoring to a good sound state after decay, injury, dilapidation or partial destruction. 'Doping a belt' to increase its friction and prevent its slipping is not repairing, within the meaning of a statute, providing that no repairs shall be made to the active mechanism or operative part of any machine when the machine is in motion."

Accessories a Big Part of the Show



The accessory floors at the New York show were a bigger feature this year than ever. There were more exhibitors and there was a greater interest in this department. The accessory men say 1918 is going to be one of the biggest years they have had if they keep America's nearly 5,000,000 cars in operation

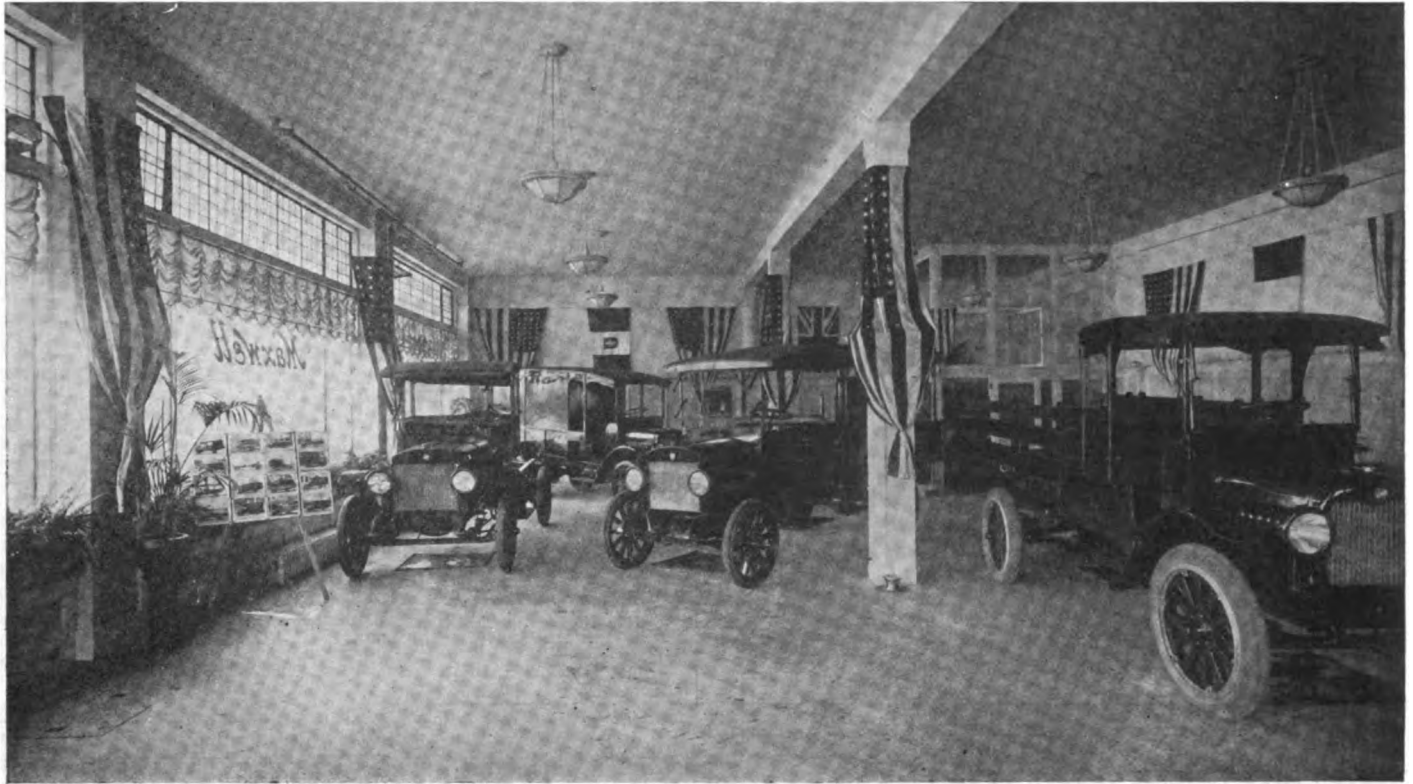


Above is a view over the back fences of the exhibits, showing how the big floor looked to the man who walked down the aisles, casting his eyes this way and that

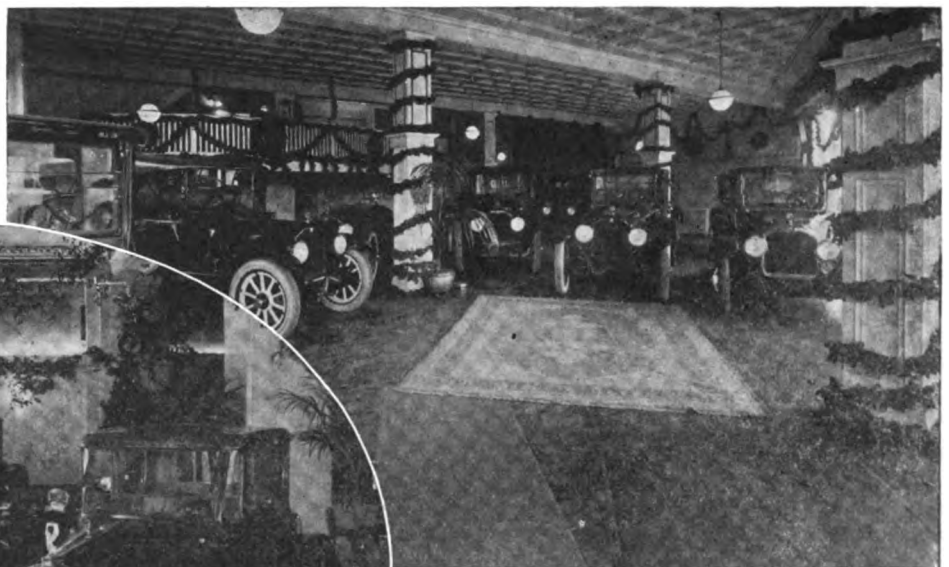
And at the right is another view of the imposing car exhibits on the ground floor. The great array of flags this year was one of the features of the affair



New York Dealers Dress Up for the Show

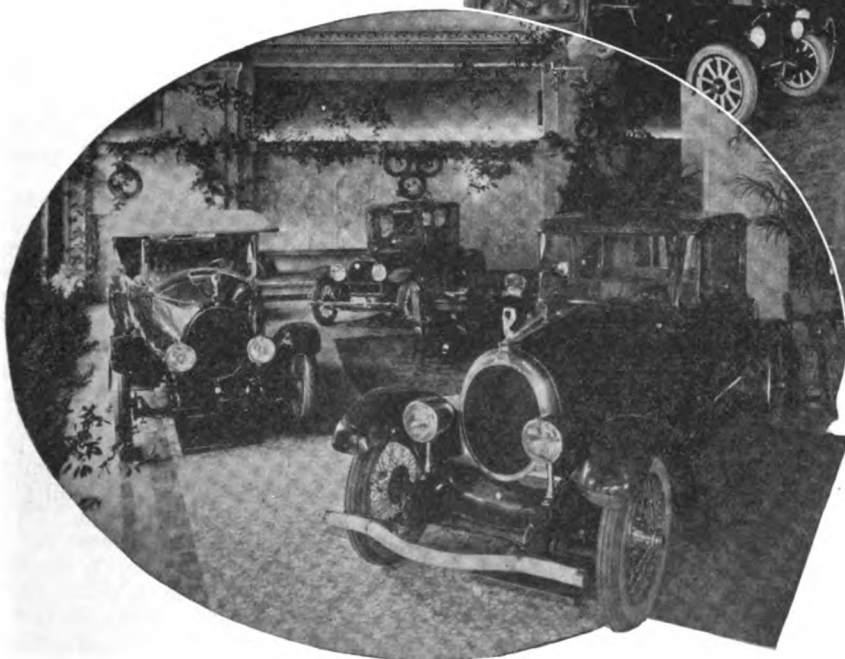


Maxwell staged a truck show in its salesroom on Columbus Circle. All the passenger cars were moved out, the room was given an appropriate business setting and invitations were sent out to a big list of prospects



Peerless (upper) entwined garlands about the pillars in its salesroom, added rugs and palms, and the man who went from the big show at the Palace to the Peerless salesroom missed none of the show atmosphere

C. T. Silver (left) made a grand bow with his Silver-Appersons and Silver-Kissels. His new and original body types were shown in a nicely decorated salesroom and dealers in his territory were urged to bring prospects to the floor, where salesmen assisted dealers in closing sales



Building a Better Catalog

The Catalog and the Salesman Must Be Judged by the Same Standard—*Productiveness*

By M. E. Faber

Advertising Manager of the C. A. Shaler Co., Waupun, Wis.

THIS article covers some points that should be of interest to the jobbing trade at this season and offers some suggestions which are in line with the policy of the Educational Committee of the National Association of Automobile Accessory Jobbers.

My suggestions are the result of a recent study of several hundred 1917 accessory catalogs and through familiarity with practically every accessory catalog that has been issued in the past eight or ten years, and they are offered with full knowledge of the difficulties encountered in compiling catalogs which include so many thousands of articles and getting them in the hands of customers in time to secure the full benefit of the short automobile season.

MR. PRINTED CATALOG and Mr. Human Salesman must be judged by the same standard—**PRODUCTIVENESS**.

Mr. Catalog's value to the jobber can be measured only by the amount of merchandise he sells. His only functions are to assist the salesman by providing compact data on the lines his house carries and to supplement the personal efforts of the salesman by making it easy for the customer to order by mail in the salesman's absence.

Now, Mr. Catalog is a most obedient salesman. He will accept his master's orders to talk to any class of trade—dealer, repairman or consumer. He will shout the merits of his wares in bold face type or meekly confide his willingness to accept any orders his customer may conveniently give. He will tell his story in clear cut, convincing language or he will use a phraseology that more nearly conceals than reveals the excellence of his merchandise. He will patiently wait his turn to be consulted as a reference book and then give up his information illogically and grudgingly, or he will be his customer's confidant, always ready to help with valuable suggestions. *He serves faithfully but only to the degree in which the compiler has given him power to serve.*

No Second Chance

Mr. Catalog, too, like other printed matter, has no scrap value. *He must make good the first time—there is no second chance.*

So, when Mr. Catalog is put on the payroll, the sequence and consistency of his solicitation, and the tone of his appeal must be even more carefully planned than in the case of Mr. Human Salesman.

In days gone by Mr. Catalog went into the highways and byways to solicit business from consumer, dealer and repairman. He was handicapped by being compelled to carry excess baggage on his consumer calls in the form of various kinds of equipment designed only for the public repair shop. He was handicapped in calling on the dealer by a lack of knowledge of the dealer's language and point of view.

To-day Mr. Catalog's journeys are confined to the dealer, garageman, and repairman, but old habits cling and while he shows improvement, he still talks to his customers in the same words that used to be the accepted form for addressing the car owner.

How to Start Training

Before we start to train Mr. Catalog for his 1918 trip let us put ourselves in the place of Mr. Salesman as he calls on a customer.

If Mr. Salesman is diplomatic he doesn't start his solicitation by reciting credit terms, etc., which have come to be rather drastic in dealing with certain classes of garage trade. He saves that until after he has the order and then often gives the impression that C. O. D. terms are a benefit and advantage to the customer.

Wouldn't it be better therefore, instead of greeting the customer with "If you aren't rated, we take no chances; send cash or we ship C. O. D.", to save that phase of the transaction for a personal letter, or include it in the discount sheet?

Let Mr. Catalog, like Mr. Salesman, first secure the customer's confidence in the house by a frank statement of its

policies, its methods of co-operation, comprehensive stock, shipping facilities, etc. Possibly in a supplement or insert of distinctively colored paper let him offer some useful suggestions about merchandising, window-trimming, accounting, use of mailing lists, repair shop systematizing, tables of mechanical data—pointers that the customer will want to refer to from time to time.

After Mr. Salesman has "passed the time of day" he'll probably take a look over the dealer's stock of accessories for car owners, and take an order for that class of goods before he proceeds to talk about shop equipment. He won't confuse his customer by talking about both lines in the same breath.

Mr. Catalog can do the same thing. Instead of thinking of himself as "accessories" and "Ford accessories" let him classify his lines as "Accessories" and "shop equipment."

The first section can comprise everything that dealers sell to car owners, and a subdivision may include Ford specialties; the second would contain machinery, machinists' tools, and equipment that is designed only for use in the public repair shop. Some goods may be difficult to classify, but if in doubt, put them in the "accessory section."

Easy for the Dealer

Thus Mr. Catalog makes it easy for the dealer to keep up his stock of accessories to sell and encourages him by suggestion and association to *sell more accessories*. Besides, the selection of equipment for the repair shop is simplified for the garageman by the removal of distracting influences.

The advantages of this arrangement are apparent when we consider the possibilities it offers as a means to educate the garageman who has not yet developed into a merchant, as to which lines are adapted for resale and which for his own use.

As a concrete, typical illustration, take the line of vulcanizers. Almost invariably we find all types and makes of devices that come under this general head grouped together without regard for the garageman's point of view. Small puncture repairers, retailing for a dollar, rub elbows with complete equipment for the tire repair shop. Confusion is supreme.

Mr. Catalog is to blame if the motorist's vulcanizer isn't carried in the accessory stock where it belongs instead of being used by the garageman as an inadequate substitute for the tire repair plant that should be in his shop.

Wouldn't it be much more consistent with Mr. Salesman's methods if Vul-Kit and Ford-Kit and 5-Minute Vulcanizer were grouped with other quick selling motorists' accessories, and the large vulcanizers were shown among their own class of shop equipment, such as air compressors, welding outfits, charging sets, etc.?

The same argument applies to many other lines. Hand pumps and air compressors should not be grouped together; or twenty-five cent grease guns and pump buckets; or tire saving jacks and turntables.

Two Specimen Ads

Compare the following specimens copied from the catalogs of two prominent jobbers.

Here is the first, obviously addressed to the dealer:

"Tremendous national advertising has created a big demand for this wonderful 5-Minute Vulcanizer. Feature it and cash in on this advertising—it means big sales for little work.

"This vulcanizer mends all tube punctures perfectly, making repairs that are far superior to any stuck-on patch. Heat is produced by burning a chemically treated disc, making the operation quick, clean and safe. Each outfit includes 12 patch and heat units.

"Each dozen packed in an attractive display carton, with advertising matter. 'SHALER' is known to every auto owner. Stock plenty at all seasons. Sales are quick and profit liberal."

And the second, of rather neutral tone:

"This vulcanizer mends tube punctures perfectly, making excellent and lasting repairs. No tool box equipment is complete without one.

"Heat is produced by burning a chemically treated disc about the size of a dollar. Each of the twelve patches furnished with the outfit is complete in itself, consisting of the patent heat unit in its metal container, and the patch of raw rubber attached to the surface of the container.

"The clamp, a dozen patches, and a piece of sandpaper comprise the outfit."

Which is most likely to make the dealer realize that here is something he can sell—and get busy with an order blank?

Mr. Catalog vs. Mr. Salesman

If the garageman were searching for goods to sell as is his neighbor the merchant whose entire energy is devoted to devising sales methods, a very brief listing of the jobber's accessories might be sufficient.

But—the catalog contains dozens of items that only those rare garagemen who study their trade papers will recognize as salable and profitable. The manufacturer's advertising, no matter how extensive, cannot overcome this problem. The dealer is accustomed to depend on the advice of Mr. Salesman as to the salability of goods that Mr. Salesman recommends.

Mr. Catalog must tell the dealer on twenty-nine days of the month what Mr. Salesman tells him on the thirtieth.

If an article is widely advertised, he ought not to conceal the fact. If the manufacturer furnishes circulars, window displays, or other selling helps, he must make capital of them. If there is an exceptional margin of profit to the dealer, he must feature it.

He can do this so diplomatically that even when the dealer introduces him to the car-owner, every word will help to make a sale.

Mr. Catalog goes to hundreds of dealers who need unlimited encouragement to become better merchants. He will make your customers more profitable to you by educating them in the elements of retailing.

Show Real Prices

Some jobbers, especially those who have been connected with the hardware trade, list the goods in their catalogs at double the dealer's net price in order to allow the dealer a straight 50 per cent discount. While this eliminates the necessity of an elaborate discount sheet, it fails to show the dealer what the retail prices to his customers should be. We refer particularly to nationally advertised articles which are sold at standard prices throughout the country.

So far as equipment for the repair shop is concerned, this is immaterial, as all that interests the repairman is how much the equipment is going to cost him. In the case of accessories which are to be resold to the motorist, it is quite essential that the dealer should know the

correct retail prices. Otherwise he may make the error of overcharging a customer who knows the correct prices, thereby losing business, or of unwittingly cutting prices, and losing the profit to which he is entitled.

The cataloger who prefers to use unique list prices should also show the resale prices. The idea of salability may be again impressed on the dealer by a mere statement, such as "Sells for \$3.50."

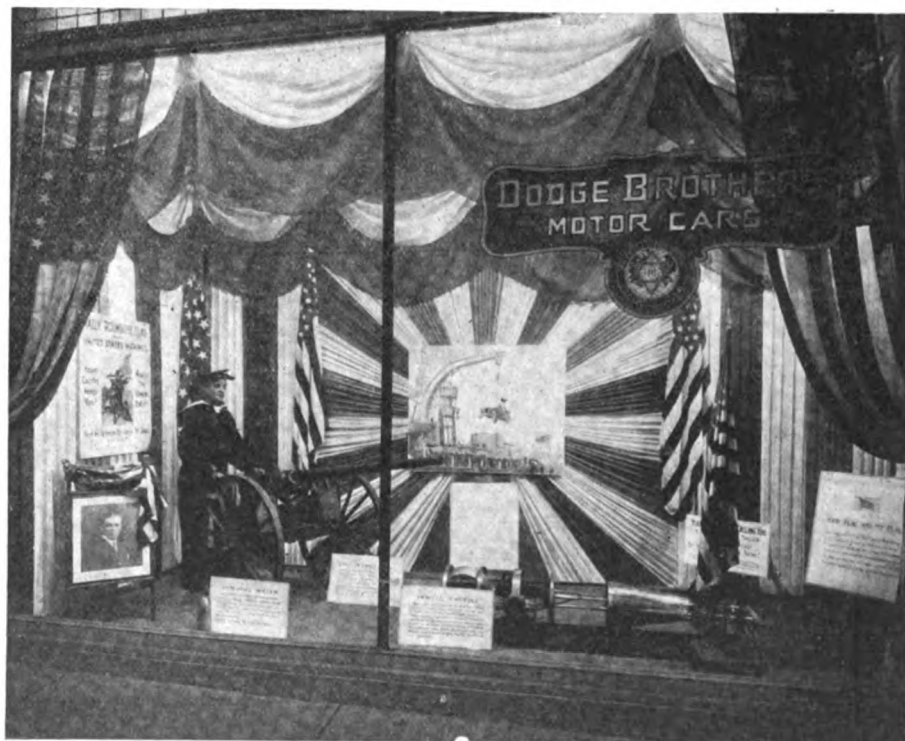
It is also advisable to use the manufacturers' stock numbers when possible. Many cases have occurred where dealers, sold by a manufacturer's literature, have tried to locate the same goods in their jobber's catalog and have failed because the jobber had used stock numbers of his own.

A Final Suggestion

Just a final suggestion which would enable Mr. Catalog to start on his 1918 trip fully prepared with up-to-date information and prices on his merchandise, and which would eliminate such printer's errors as inverted illustrations, obsolete copy, copy adjacent to wrong cuts, etc.

Have your printer make two sets of galley proofs instead of one. Retain one for your own reference and send the other to the manufacturers whose lines are represented. Without exception they would appreciate your co-operation and probably would have their pages back to you with authoritative O. K.'s as quickly as you could read all of the proof yourself.

War Weapons Draw the Crowds



THE HENSHAW MOTOR CO., Boston, which handles the Dodge, is still doing business. This is one of the ways it gets business. The window shows a gun, a jackie, the insides of a torpedo and numerous good signs. Make a war window, photograph it at night and send the picture to Motor World

A Department of

BETTER MECHANICS

No. 53

Bearing Work on Ford Engines

By S. T. Williams

THE following has been prepared in response to numerous requests from subscribers. However, the equipment required in rebabbitting the bearings is quite elaborate, and unless a large volume of work is available it cannot be used except at a loss. The larger Ford service stations or assembling plants throughout the country are fitted

with the necessary equipment and will rebabbit the main bearings for \$1.25. Connecting-rods needing new bearings will be exchanged for 75 cents each. In view of this, ordinary circumstances will not merit the use of the equipment in a small shop, but it was asked for—and is incorporated in the following story.

THE Ford car has been standardized for many years and for this reason the shop equipment required in doing repair work has been exceptionally well standardized. The following are some of the more common appliances used in overhauling the Ford engine, and in general they may be made and used in any shop, greatly facilitating the work.

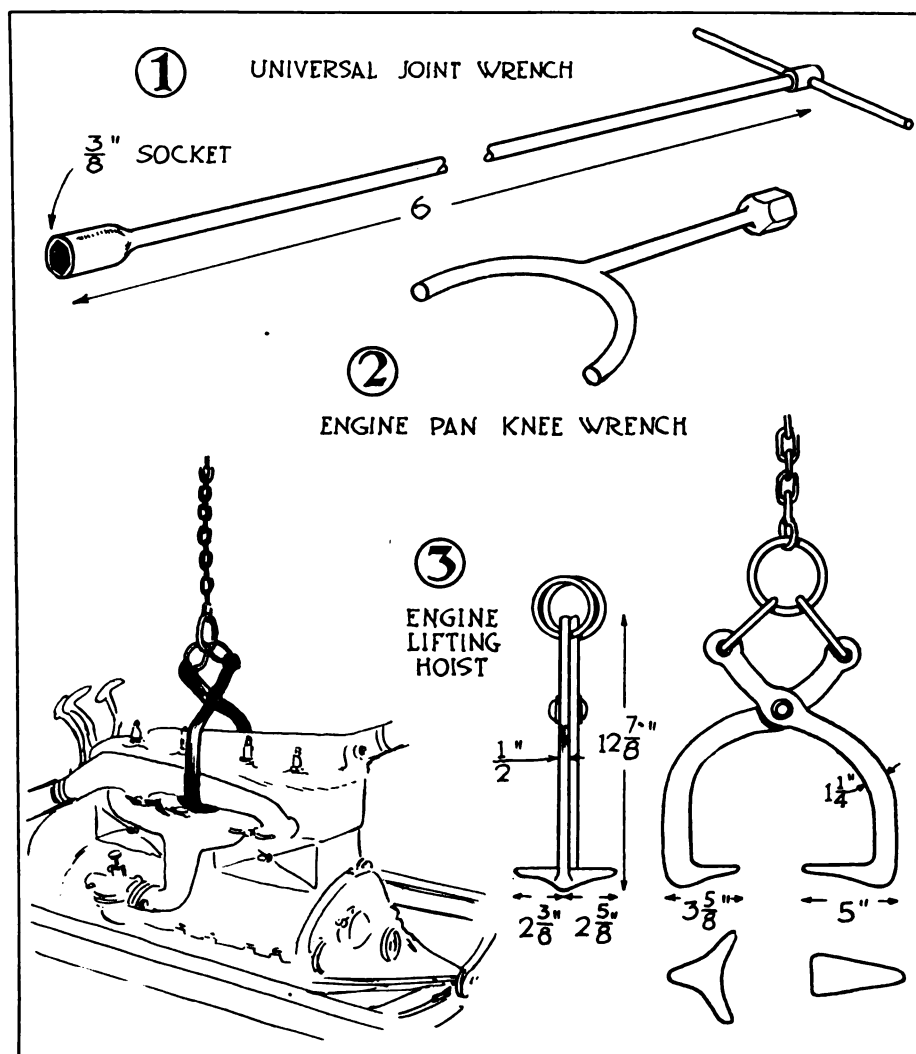
Fig. 1—Universal Joint Wrench—This wrench permits the bolts holding the Universal joint to be removed from the rear of the car much quicker than they could be removed by a short socket wrench through the floor bolts. It is a $\frac{3}{8}$ -in. socket wrench with a 6-ft. handle.

Fig. 2—Engine Pan Knee-Wrench—By this wrench the mechanic can hold the lower end of the bolts, using his knee as a lock and another socket wrench to unscrew the bolt. Otherwise two men are required to do this work, one to hold the nut from beneath and the other to turn from above.

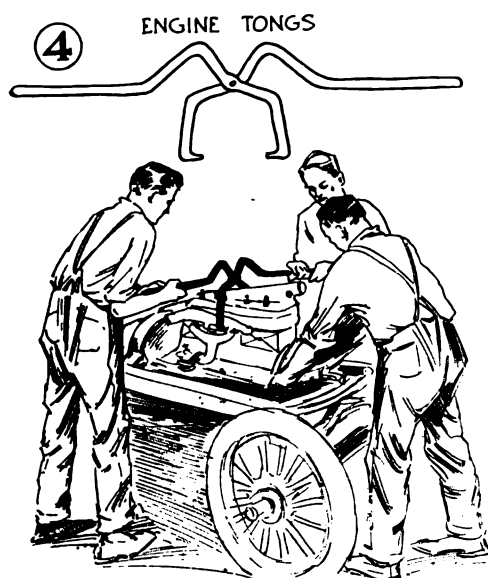
Fig. 3—Engine Lifting Hoist—This hoist is of the tongs type and is used in conjunction with a chain-fall. After all points of connection of the engine with the frame are removed these tongs are caught over the waterjacket at the rear and the engine is lifted from place. The point of attachment is about the center of weight and the engine balances nicely.

Fig. 4—Engine Lifting Tongs—In the smaller shops where a chain-fall is not used these tongs are advisable for lifting or replacing the engine. One man at each side and another at the front in the manner shown can readily handle the engine.

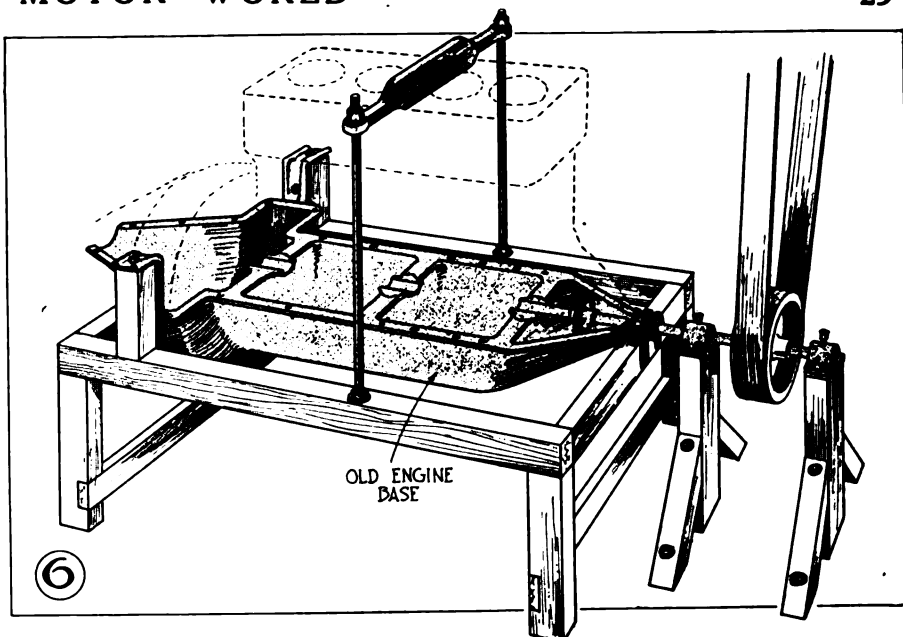
Fig. 5—Engine Repair Bench—The Ford Motor Co. provides engine clamps for holding the engine. They should be mounted on a metal top bench in the



These special tools will greatly facilitate bearing work on Ford engines and others. They can all be made in the shop from odds and ends of discarded material. The story tells all about them



This shows how one of the special tools is used in removing the engine from the frame



A special stand for running in the bearings after they have been rebabbitted is advisable and is not difficult to make. Shop power can be used

manner shown. This arrangement renders all parts of the engine accessible and holds it firmly in place.

Fig. 6—Running-In Stand—After the bearings have been tightened on an engine, the common practice is to permit the engine to run under its own power for a short time until some of the stiffness is taken out. By bolting the engine to an old Ford base that is secured to a wooden frame work, and driving it from the line shaft, the bearings may be quickly "burned in." This permits the bearings to be fitted with a small amount of scraping and is the practice followed in all large Ford service stations.

Fig. 7—Engine Truck—This is another form of an engine repair stand and is equipped with castors, so that the engine may be moved anywhere around

the shop. It may be constructed by any mechanic and in a smaller shop may be used instead of the engine stand shown in Fig. 5.

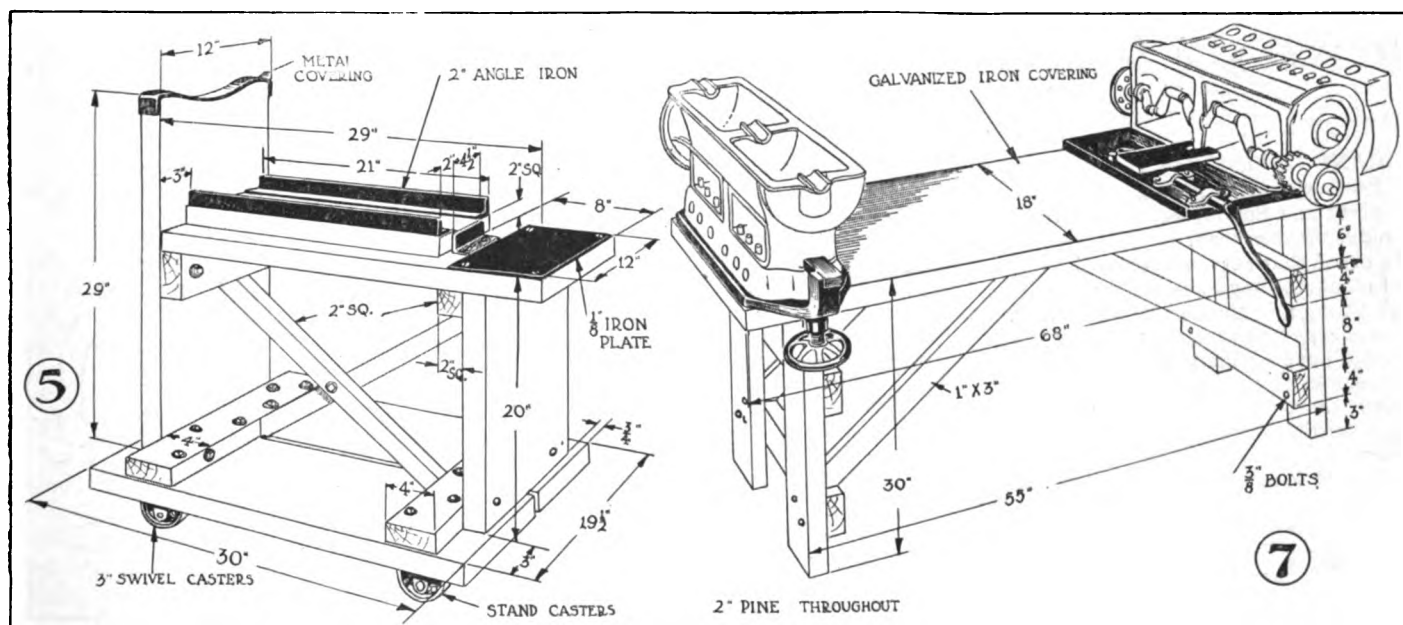
Fig. 8—Rebabbiting Arbor—This is the arbor used in rebabbitting the main bearings, and forms a mold so that the bearing metal may be correctly formed in place. Similar arbors are used in forming the babbitt liners on the connecting-rod bearings and on the main bearing caps.

LOCATING ENGINE NOISE

There is a marked distinction between the quality of the knocks caused by a rough bearing. That caused by a loose connecting-rod is similar to the tapping of steel with a small hammer, and is most noticeable when the car is idling downhill or just after closing the throttle

after speeding up. The noise caused by a rough main bearing is a true pound, most evident when the engine is under load. These two noises are distinct from the noise caused by a loose piston, which is evident when the throttle is suddenly opened.

The connecting-rods may readily be tightened without removing the engine from the car by simply removing the plate on the bottom of the crankcase, removing the lower connecting-rod bearing halves and draw-filing the ends slightly. It is essential that the same amount of material be removed from each side and that the caps be replaced in exactly the position from which they were removed. The fit of the bearings can be determined by applying prussian blue to the crankshaft in noting the points of contact with the babbitt.

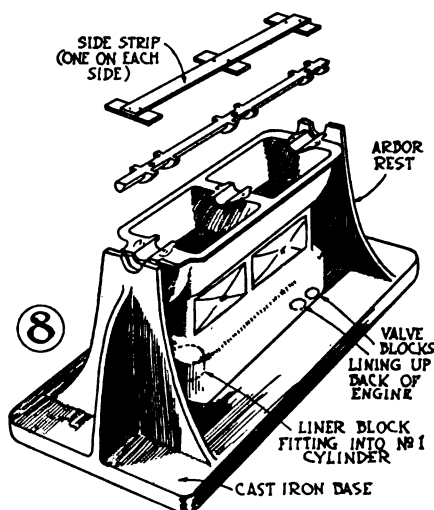


A special engine repair bench is a very valuable adjunct to any shop where extensive bearing work is done. This is a good one

Here is another type of engine truck which is on castors and can be moved about the shop to the most convenient place

To adjust the main bearings, however, it is necessary to remove the engine from the car. The following are the steps in detail in doing this work:

1. Drain the radiator.
 2. Using the long socket wrench remove the four bolts at the universal joints.
 3. Remove the rear spring shackles and pull the rear axle back after blocking up the rear of the car.
 4. Disconnect the radiator staple and radiator hose. Then remove the radiator.
 5. Unstrap the commutator and place it at one side.
 6. Move the spark-plug wires.
 7. Shut off the gasoline and remove the forward line from the carbureter.
 8. Disconnect the exhaust manifold from the exhaust pipe and remove both intake and exhaust manifolds.
 9. Remove the chain shaft bracket and the timing gear case.
 10. Using the knee-wrench, remove the two bolts holding the pans to each side of the base and knock the pans down, out of the way.
 11. Remove the base bolts.
 12. Remove the transmission case after loosening the reverse low and brake bands.
 13. Using the hoist shown in Fig. 3 or 4, lift the engine from the frame.
- By this method the base of the engine is left in the car undisturbed and the engine may be removed from the frame without disturbing the steering gear and dash.
- The cylinder heads may then be removed and the engine placed on the



The rebabbiting arbor is used to correctly form the bearing metal

truck shown in Fig. 7. The connecting-rods, transmission and magneto coils are next removed, leaving the crankshaft alone in the engine. The three bearing caps on the main bearings are removed and cleaned with gasoline. Before doing this, however, the amount of looseness present should be determined by prying the crankshaft with a crowbar. A small amount of material is filed from the sides of the bearing caps, prussian blue applied to the crankshaft and the cap replaced.

The bolts holding the cap are tightened as far as possible and the crankshaft turned. The points of contact be-

tween the shaft and the bearing will be registered, and these should be scraped down until the full bearing the length of the cap is indicated. The bearing caps may then be replaced and bolted securely.

In the foregoing manner, familiar to every mechanic, a small amount of looseness may be removed. However, if end-play is present, or if the bearings have been burned out, rebabbiting is then necessary.

The first step in rebabbiting is to clean out the old babbitt. This may be knocked out with a cold chisel or melted out with a blowtorch. The latter operation is somewhat more satisfactory, as it serves to remove all traces of oil from the bearing housings and to warm the castings up slightly so that the new babbitt will not chill too quickly on pouring.

The babbitt arbor shown in Fig. 8 is then placed in the bearings, and the side straps pressed closely at the sides. These form a perfect mold for the new babbitt which is poured in through the openings at the top of the arbor. A good grade of babbitt should be used for this purpose and the bearing housing should be warmed to prevent chilling the babbitt.

The caps of the bearings may be rebabbitted individually in a similar manner, and are then bolted on to the crankcase. A special line reamer is then used to ream the three bearings out to approximately the size of the crankshaft and brings the bearings properly in line. After a slight amount of scraping and fitting, shims are bolted in place and the block is placed on the running-in stand. Here the final fit is secured and the bearings run in oil. The assembly is the reverse of the tearing-down process.

Grand Rapids Dealers Close Evenings

Arrange with Downtown Garage to Give Emergency Assistance—Cars Are Towed to Dealer Free the Next Morning

GRAND RAPIDS, Jan. 17—Eighteen of the leading dealers in this city have cut out night and Sunday service as a means of reducing overhead.

In order that service may still be rendered at night they have designated Bronson's Garage, in the downtown section, as an emergency service station for all dealers, and have notified 5000 car owners in this section of the new plan.

Any short-time repair will be made nights and Sundays by the Bronson Garage, which takes care of all emergency work, and jobs which cannot be done in a short time are turned over to the proper dealer at the beginning of the next working day. The owner of the car is asked to notify whichever dealer he wishes to handle the job.

The new plan was announced to the 5000 car owners by the following letter:

The conservation of available expert auto-

mobile mechanics' services as a war-time requirement has caused the following representative list of automobile merchants in Grand Rapids to announce that on and after December 10th, 1917, their places of business will be open from 7 o'clock in the morning until 6 o'clock in the evening on week days only. They will be closed after hour mentioned in the evening and Sundays all day.

In cases requiring immediate service during the night and on Sundays, prompt and satisfactory arrangements may be made with Bronson's Garage, centrally and conveniently located at 218 Bond Avenue, to start cars and for towing same into the garage. By notifying the dealer you desire the following morning, your car will be taken to that service station and service authorized will be rendered promptly.

The following mentioned Automobile Dealers have adopted this plan and appeal to your patriotism to give it your hearty support and co-operation. Anticipation of your requirements both in repairs and supplies

will prevent annoyance to yourself and greatly facilitate the operation of this action.

Barkwell-Bulck Co.
Becker Auto Co.
Beelby-Neurlether Co.
Valley City Motor Car Co.
Bruff W. Olm
Oldsmobile Co.
F. P. Oswald Co.
Grand Rapids Overland Co.
Western Michigan Paige Co.
Miller-Elgin Co.
Reo Motor Co.
Haynes Co., of G. R.
McKay-Nash Motor Co.
Winton Motor Car Co.
Cadillac Co. of G. R.
Chandler Motor Sales Co.
Western Michigan Motor Co.
Kramer-Elgin Co.

Yours very truly,
AUTOMOBILE BUSINESS ASS'N.
Per Ernest T. Conlon, Sec.

Let *Every* Dealer In

Why Should *Any* Dealer, Who Goes to a Show on Business, Be Excluded Because of Foolish Ticket Regulations?
What Do *You* Think?

"THE automobile dealer is to the industry what the fuel is to the car, relatively; for between the maker and the owner he supplies the power to put the car over; yet, as far as national shows are concerned, he is treated with less consideration than the man who writes motor news for the *Podunk Bladder*."

One of the biggest dealers in the country made that statement at the New York show. He has a large territory for a well-known car. He sells a lot of cars each year, and so helps the manufacturer to be a success. But as far as the show is concerned he is a nonentity, practically. Three tickets were allotted to him for the show. They were admissions. Once they were used, thereafter he had to pay his way in whenever he went out.

"Here I am in New York, at a personal sacrifice of my business at home, paying my own hotel bills, when my visit here is of more importance to the maker than to me," he continued. "Yet a reporter for a rural paper rates higher, for he gets a season ticket entitling him to enter any and all times free. Now, something is wrong somewhere, and if the National Automobile Dealers' Association never did anything else but straighten this out and give us what we are entitled to, it would have an excuse for its existence."

Scant Consideration for Dealers

There is a lot of truth in what that dealer said. And other dealers have said similar things before. But each year it is the same story. The men who have invested their money in the industry as dealers come to New York or go to Chicago, and they get scant consideration.

They go home feeling sore when they should be sent home happy. Many of them do not care much about the extra cost of getting into and out of the show, but there are others, successful business men, who feel that the principle is wrong. And just at this particular time, when the dealers are wondering about the future; when it is vitally essential to the factories that they keep their dealer organizations intact, the manufacturers, who are responsible for the New York and Chicago shows, should take the matter up and remedy it.

Every holiday season the big department stores put on extra help. These employees sometimes are paid on a commission basis. If they were told that during holiday week they could enter three times gratis to go to work, but after that they would have to pay for entering, how many would stick on the job? How many would take such employment? A few, perhaps. Yet it is upon just as nonsensical a basis as this that the motor dealers are treated at the two big shows. Instead of encouraging them to come and help make it a success they are induced to stay

home. And of all times this is the one particular year, with war conditions frightening many, when they should get encouragement instead of being treated like unruly schoolboys.

There is no reason why a dealer visiting a national show, who has come hundreds of miles, should not be given a season ticket or a button entitling him to enter at any or all times. The show is not a prison, and the dealers should not be handled like inmates of such a place upon whom an extra penalty should be imposed for going outside a few times.

Good Examples From Smaller Shows

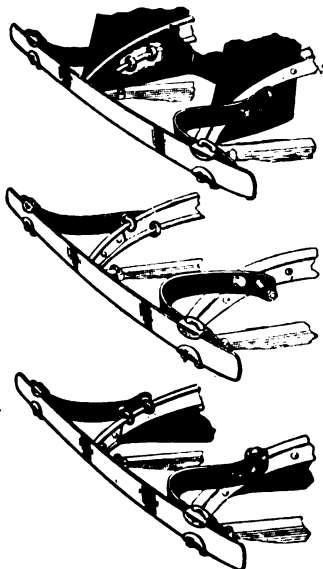
Certainly, if Kansas City, Philadelphia, Boston and other cities can arrange a system for handling the dealer situation, the N. A. C. C. officials should be able to do the same. It may be that there would be a few abuses of the privilege. It is the same in every line of business. But the majority should not suffer for the sins of the few. The total drop in income from allowing dealers to enter the show freely would be so small as to be negligible.

At the present time many dealers jest about the "rake off" from the two big shows; they jest about the "camouflage decorations"; they laugh over the trips of the makers to Christmas Cove each summer and the supposed plans made there. Now, that sort of thing, if kept up, will become dangerous. From jesting the dealers will get sore, and they may start a movement to compel the makers to not alone pay for their tickets to the shows, but the entire cost of railroad and hotel bills as well. The day has passed when live dealers have to go begging for the privilege of selling cars. Many good cars are still unrepresented in some big places. And there are makers who would gladly pay such expenses to get the right representation in big centers. Let one or two makers do it, and the others will have to follow.

So, while there is time the makers should look at their dealers clearly, not through the reverse end of the telescope. The makers are saving at the spigot now, but the dealers have begun to get busy with a mallet at the bunghole, and unless the latter are assured that they will get a fair share they will spill the entire contents of the barrel. And the mallet pounders will revel in their work, while the spigot watchmen will not be able to see the joke.

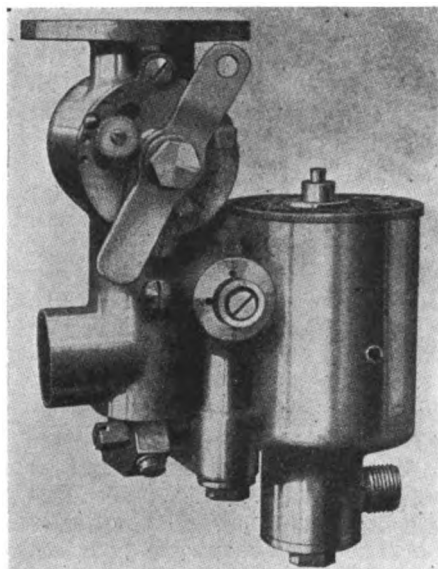
At the annual meeting of the National Automobile Dealers' Association, at Chicago, the matter should be taken up, and while it is too late to do anything this year to remedy conditions for the two big shows, the problem can be settled to govern future exhibitions. If the makers expect real co-operation from their dealers, here is a chance for them to make a start.

Accessories



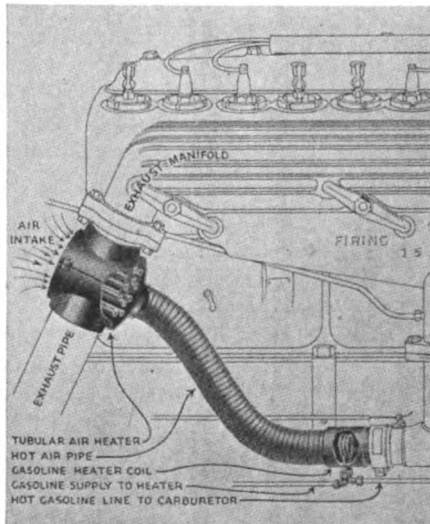
Metsco Bumper

The Metsco bumper is an addition to the Lyon bumper line. It is made of spring steel, being a single bar held by brackets which are adjustable to cars which have splash pans extending to the frame end. Price \$7 to \$9, depending upon size and finish.—Metal Stamping Co., Long Island City, N. Y.



Lacharnay Carburetor

This carburetor has two spray nozzles in separate chambers, one for idling and slow speeds, the other for normal and high speeds. At normal speeds both jets operate in compensation. At high speeds the smaller nozzle acts as an air valve.—Lacharnay Carburetor Works, Paterson, N. Y.



Ellis Car-Bur-Aid

This is said to secure a uniform mixture at all temperatures and altitudes. It heats both the air and the fuel before they enter the carburetor by means of the direct heat from the engine exhaust. This passes around the copper tubes of the Car-Bur-Aid, the air flowing through these tubes being thus heated to a very high temperature and conveyed to the carburetor through the hot air pipe as shown. The figure shows the device attached to an Owen Magnetic car, but the installation is similar on all cars having the intake and exhaust on the same side of the motor. Prices from \$15 to \$37.50, depending on the type of car.—Motor Efficiency Corporation, Philadelphia.

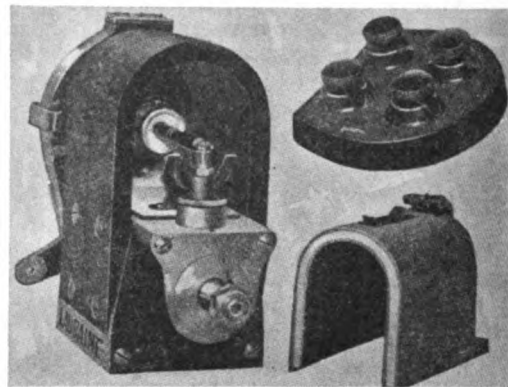


Hercules Bumper

A new Hercules bumper has been put on the market. This is a spring steel type, the front steel bar being re-enforced by a secondary spring which is held fast to the other by clamps. Made in three sizes with black enamel finish. Prices, large car type, \$14; medium car type, \$13; Ford car type, \$11; for nickel finish, \$1 extra on all types.—Hercules Spring Bumper Co., New York.

Lauraine Magneto

The Lauraine magneto is made in all standard sizes and is of the Siemens armature, high-tension type. It is a standard type of machine made of high grade materials, offering no radical departures in design. The waterproof covering can be removed, rendering the parts accessible. The breaker housing is supplied with two arms, permitting the machine to be linked up from either side. All castings, bases, and end plates are bronze; the cam is a cross section of steel tubing, and all high tension parts are hard rubber. By means of a small window in the waterproofing cover the spark at the safety gap is visible. Prices, \$30 to \$80 according to size.—Menominee Electric Products, Inc., New York.

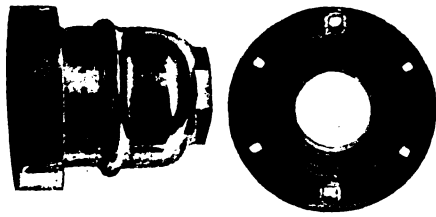


Alcola Anti-Freeze

This preparation is in the form of powder, instantly soluble in cold water. It is said to protect against freezing to 20 degrees below zero, Fahr., to raise the boiling point of water from 25 to 50 degrees, and to be non-evaporative and chemically inactive. It is furnished in 10-lb. air-tight tubular boxes, enough for a small car. Price \$2.—Alcerno Mfg. Co., Newark, N. J.

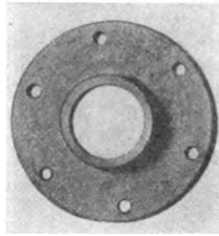
Wonder Seal

Wonder Seal is a substance slightly thinner than putty made for repairing punctures. It may be injected into an inner tube, about 1½ lb. to the tube, by means of a grease gun. The Wonder Seal then forms a sort of slimy covering on the inner surface of the tube; and whenever a puncture occurs the material oozes out forming a seal to stop the leakage of air.—Wonder Seal Co., New York.



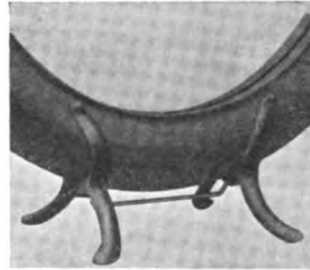
Hudson Demountable Hub Wheels

These are wheels equipped with the patented Hudson hub which permits the wheels to be removed and attached by screwing the hub off or on. The hubs are attachable to any set of standard Ford wheels. Price, per set of five attachments, \$12.50.—Hudson Motor Specialties Co., Philadelphia.



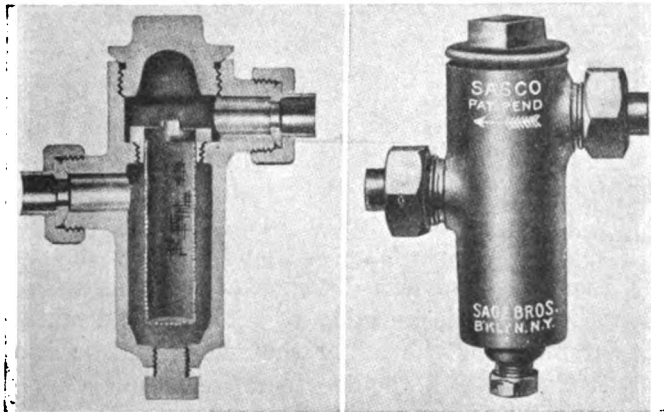
Victor Spotlight

There is a new line of wind-shield spotlights made in various styles to match the different types of headlights used upon standard cars. Finished in nickel and black enamel.—Corcoran Victor Co., Cincinnati.



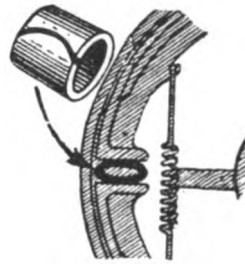
Tire Display Rack

A display rack automatically adjustable for holding tires of any size. The weight of the tire causes the arms to grip and hold firmly. Simple and strong in construction. Price \$1.75 in black or grey; \$2.25 in nickel.—Ellis-Smith Mfg. Co., Inc., Buffalo.



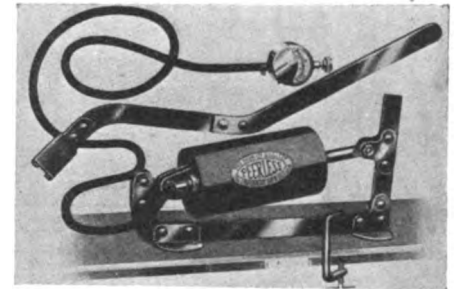
Sasco Strainer

This is a device for straining gasoline before it enters the carburetor. It is made of aluminum, 4 in. in height and 3 in. wide, and is fitted with ground joint couplings for any of the following sizes of tubing; $\frac{3}{16}$ in., $\frac{1}{4}$ in., $\frac{5}{16}$ in., and $\frac{3}{8}$ in. outside diameter. The strainer has a top which may be unscrewed so that the strained basket mesh may be removed and cleaned when necessary. Price \$3.—Sage Brothers, Inc., Brooklyn, N. Y.



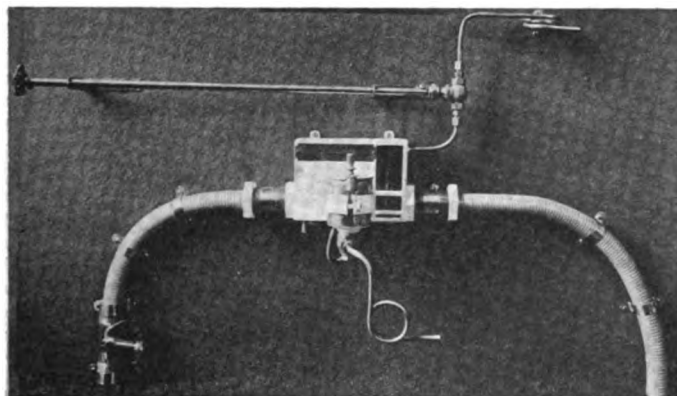
Apco Brake Adjuster

When the Ford emergency brake shoes are worn so that the cams do not open the shoes wide enough to engage the drum, these adjusters are driven over the cams to take up the wear. They are made from high grade steel and can be used indefinitely as they are subject to little or no wear. Price 25 cents per pair.—Apco Mfg. Co., Providence, R. I.



Peerless Runningboard Pump

A runningboard tire pump of all-steel stampings, finished in all black japan baked on, with the cylinder finished in red. The cylinder is made of one piece, and is seamless. The pump is furnished with gage, if ordered, with 90 in. of hose, and with a clamp to fasten it on the runningboard. The handle folds and the entire outfit will fit into a small tool box. Each pump is packed in a carton; 24 cartons will be shipped in a wooden case. Price, \$3.50 without gage; \$4.25 with gage.—Corcoran Mfg. Co., Cincinnati, Ohio.



Wateretor

This is a device to supply steam to the intake manifold of any gasoline or kerosine motor. It consists of a water chamber heated by the motor in which water is kept at a constant level by an auxiliary float chamber. The steam generated in this chamber is fed through pipes to the intake manifold, and controlled by a throttle at the dash.—Shawvan Motor Equipment Co., New York.

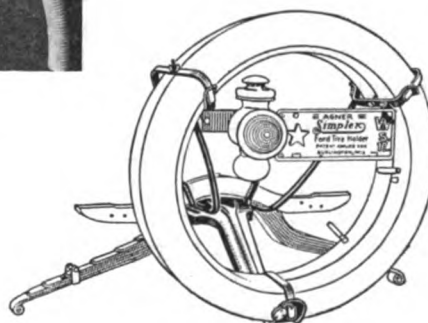
Agner Simplex Tire Holder

This tire holder has a lower base stamped out of open hearth steel $\frac{1}{4}$ in. thick and drawn to shape with an upward raised reinforcement. This strengthens the holder and forms a strong support for the rear spring. Two demountable tires are held in adjustable steel bands, and the holder also carries a license and lamp bracket so constructed that the tires do not hide the number.—Agner Simplex Co., Burlington, Wis.



Utility Floor Machine

This device consists of a motor in a case traveling on two wheels, something after the manner of a vacuum cleaner. It carries a steel wire brush, a palmetto scrubbing brush, a tampico polishing brush and a sandpaper disk which are interchangeable and are serviceable for use on all kinds of floors, from wood to concrete. The device formerly was made by the Vacuna Co., New York, and now is made by the Kent Vacuum Cleaner Co., Inc., Rome, N. Y.



Editorial Observation

The New Year and the Old Garage

HERE is a brand new year and all the good resolutions we made on Jan. 1 will, without doubt, be carried out to the letter—perhaps.

Also, perhaps, there is room for one more and this is it: Let us get to work now and put the garage and all things pertaining to it in the condition we know it should be in but isn't.

A recent visit at random to a number of garages, big and little, busy and otherwise, showed so much to be desired in this respect that we are moved to preach a little on the text of cleanliness, order and efficiency.

Look over your competitors.

Look about your own premises.

First: Are they as clean as they can be made? If not make them so, and don't forget the dark corners. It is not so long ago that city streets were dirty, as a matter of course, because they had always been so. They are not so now because the public insists that they be kept clean and attractive. The car owner expects the same thing when selecting a place to keep or repair his car.

Second: Are they kept in order? Are separate parts, old tires, broken and discarded odds and ends

simply thrown aside in any temporarily convenient spot—and left there—or are they put at once where they belong, to be kept, sold or scrapped? The latter, of course, takes less time in the long run than the former and makes a good impression on the customer.

Third: How much time are you losing due to the inconvenient placing of your departments? Perhaps you don't call them departments—the stockroom, the repairshop, the storeroom, the wash rack. In any large factory much thought is given to those things because time is money. Why not in your garage? The less distance a man has to go and the less trouble he takes to get tools and materials for his work the better that work will be and the less time it will require to make it so.

All these things are truisms. We all know there is room for improvement and we have always intended to do just these things—only we haven't.

Let's get to work and see what a difference it makes. Begin now and keep it up as though all success depended upon it.

To a great extent it does.

Wanted—Roads

THESE are days when we are getting on the right track so far as thinking nationally is concerned.

In the first 9 months of the war there were many wrong conclusions with regard to our national system. For example, Priority Order No. 2, issued though the Council of National Defense on Nov. 1, prohibited the use of open cars for carrying road material, the reason being that these cars were needed for the transportation of coal.

At that time the argument sounded feasible, and as everybody was anxious that coal should be moved tens of thousands kept quiet and would not criticize, lest their criticism might be considered unpatriotic.

Look to-day and see how the tide of opinion has turned and follow the national current of thought with regard to highways. We have appointed a Highway Transport Committee for the avowed purpose of improving our highways so that we can drive motor

trucks and motor cars over them, thereby relieving the congestion on the railroad cars.

The State of Pennsylvania has agreed to keep the Lincoln Highway across the state free of snow during the winter months in order that motor trucks for the government may be driven from the factories in the zone of the Great Lakes to seaboard. Arrangements are being made to keep our highway across the state of New York from the Great Lakes free of snow for the same period.

The Highway Transport Committee should demand and will demand—and it will be backed up by the War Department—that where there are not bridges strong enough to carry 5-ton trucks loaded, that bridges adequate for such service be put in.

A movement is on hand to build roads that are suitable for motor truck service. The day of the macadam road and the horse has passed, and the day

of the cement road and the motor car is in our midst.

No longer can our state governments continue building dirt roads and gravel roads, and macadam roads for motor truck service. They must build cement roads and others of that type that are capable of sustaining motor traffic that the section of the country requires.

Roads Are Essential

The government has learned that road material is essential. It has learned that roads are essential. It has learned that motor trucks are essential. It has learned that good bridges are essential.

Perhaps you do not believe this yourself. Perhaps you think that it is possible to have such roads in your territory. Perhaps you say there is not money enough to construct such roads.

Now that you are a part of the government; now that the government is in your place of business; now that it is in your home; now that it should be in your own brain! The world looks to you to say what your territory requires in the way of roads, and the burden will be on you, if the necessary information weighed against the needs of the day is not forthcoming.

Responsibility Is on You

The responsibility is on you and not on some one "down in Washington."

Years ago there was enough money to build a railroad through your town. The population was sparse; crops were poor; people were poor. But the railroads went through.

It was transportation that made the great agricultural area between the Rockies and the Alleghenies, and now it is road transportation that is necessary to bring the yield from those fertile acres up to the yield of the century-old friends of England and France and enemy countries.

The railroads cannot do that. It must be done by the highways and the essential motor truck, and the essential motor car.

It is up to you, Mr. Dealer, to say if you want to do your part in this essential program. It is a national disgrace that the greatest grain-producing area in the world is without improved roads.

No Modern Through Roads

There is not a modern motor truck road for through traffic running either east or west or north or south across the great fertile plains stretching between the Rockies and the Alleghenies.

The fault that this area has not roads has rested with the people living in this area. If this area is to have roads it will depend on the people living in it.

The business of the dealer then becomes a broader one than merely selling motor cars or motor trucks, or farm tractors, or motorcycles, or motorboats.

His job is selling transportation in the zone in which he lives, and to sell transportation he must sell roads on which that transportation can be used.

He cannot sell 5-ton trucks without selling roads suitable for 5-ton trucks, and while he must sell the truck to an individual, he must sell the road to the community.

Trucks Useless Without Roads

The Atlantic type locomotive is no good without the heavier rails and heavier bridges to carry it. The Mauretania and Olympic are practically useless without the 40-ft. channels in which they can steam to the docks and without the 1000-ft. docks that they can be brought alongside of.

Along the same line of reasoning the motor truck is practically relatively useless and inefficient without the modern roads that it needs.

Good Advice

HOW often have we seen behind a dealer's counter a great stack of expensive advertising matter that the manufacturer has sent out? How often have we wondered just why it was there? We have been inclined to blame the dealer for failing to make proper use of this material when the blame does not always rest with him.

Mr. E. B. Sigerson of the McGraw Tire & Rubber Co. has taken another slant at the trouble and it seems so good that part of it is given here. He says:

"The distribution of advertising matter through the dealer always has been accompanied by a considerable amount of waste, and no better thing can be done right now than to eliminate this waste and to make the distribution of this advertising matter as economical as the distribution of any other kind of merchandise.

"Very often the salesman completes a sale, and when he is writing up his orders at night he decides to send the dealer advertising matter and so he sends in his order, which is in due time sent out to the dealer.

"The dealer is not equipped to distribute this advertising matter properly to his trade, he had not asked for it, it is not welcome, and not having been thoroughly advised as to the purpose of this advertising matter, he rather resents the manufacturer's attempt, as he sees it, to force him to advertise for the manufacturer's benefit.

"This may be a false and foolish stand for the dealer to take, but the dealer does take this stand, and always will, until he and the manufacturer have a more definite understanding than they have had in the past."

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

On Trade Acceptances

Editor Motor World: I have carefully read your treatise in the Dec. 19 issue on Trade Acceptances.

I have heard the merits and demerits, the good and bad features on the Trade Acceptance proposition discussed pro and con, and I am free to say that in a way there is room for doubt, in my mind, as to the practical workings of this method of payment as applied to the retail trade or the man who usually lacks a good accounting system that prompts him to realize and recognize the necessity of meeting his obligations. Just as outlined in your supposed or alleged question No. 9, which reads, "We do not wish to be bound by any specific date of maturity," and then taking into consideration argument No. 8 applying to increasing dealers' credit on the same page, which reads, "he might even have trouble borrowing money on a note to get goods and the Trade Acceptance gives him these goods." These two points answer the strongest arguments I have heard against the Trade Acceptance. There is a constant fear that the dealer will operate upon the theory of "come easy, go easy," and that he will neglect the old saying of "short accounts make long friendships," and that it will ultimately prove to be a liquid credit for a man who does not appreciate it, rather than a liquid asset.

In so far as the article that you have published and the space you have given it, it is certainly very clear and comprehensive.—Wm. M. Webster, Commissioner, National Association of Automobile Accessory Jobbers, Chicago.

Likes Trade Acceptance

Editor Motor World: The writer has read with considerable interest your article on "The Use of Trade Acceptance" in your issue of Dec. 19 and wishes to take this opportunity to compliment you on the completeness of your explanation. It has been a great help to us in getting our dealers educated to Trade Acceptance plan which we have been using for the past sixty days.

We are enclosing herewith our term letter and general letter which we sent out to trade, also sample of our Trade Acceptance, and if same would be of any advantage to you in answering inquiries, we wish to assure you you are at liberty to use same.

Yours for a prosperous year and betterment of trade.—G. S. PATTERSON, Columbia Tire & Supply Co., Lafayette, Ind.

The Lafayette Letter

To Our Customers:

We would respectfully call to your attention the terms under which our merchandise is sold to firms with sufficient credit rating to allow open account terms:

"A"—2 per cent discount for cash within 10 days of date of invoice.

"B"—Net 30 days from date of invoice on open account.

"C"—Net 60 days from date of invoice when Trade Acceptance is given.

Trade Acceptance Blank will be enclosed with statement showing your monthly balance, or with your invoices. If it is your desire to take advantage of "C" terms, please fill in and return Trade Acceptance Blank promptly.

We appreciate that if you send us this Acceptance you may not have received the goods and therefore may not have had an opportunity of checking up the shipment. This is our guarantee that any adjustments will be made by us as carefully and promptly as if the amount had not been settled before arrival of goods.

If you elect to remit under either terms "A" or "B," please return Trade Acceptance Blank without your endorsement thereon. We will then understand that your check less discount will be sent within ten days, or your check for net amount will be sent within thirty days.

At the expiration of thirty days, if you elect to pay under "B" terms, and check has not been received, the account will be subject to sight draft without notice.

Yours truly,
COLUMBIA TIRE & AUTO CO.

Another Columbia Letter

Dear Sir: We have a proposition to place before you that should be of vital interest to all concerned. It is with reference to the New Federal Reserve Act, which has been passed by our Government, and places in our hands an instrument known as "Trade Acceptance."

No doubt you are familiar with the

conditions, but if not would like to impress upon you the fact that the Trade Acceptance is not a note; for a note is drawn by a person, whereas an Acceptance is drawn on a person. The acknowledgement of the purchaser by the signing of this Acceptance, places the seller in position if necessary to discount this paper, which is negotiable.

The United States Government has adopted the plan and the Federal Reserve Banks are endorsing it, realizing that it would do away with the monetary stringencies which so often afflict the United States; it will give the seller, whether manufacturer, jobber or dealer, an opportunity to realize on his accounts receivable at once, thereby placing the burden of carrying the loan upon the banks, which is only proper.

As we have occasion to ship you more than one lot of materials per month, our plan would be to attach a Trade Acceptance to our statement, which is sent out on the last day of each month. If drawn on a sixty day basis, you can see it will give you almost ninety days on some invoices, and at the same time place us in position to get the use of our money should it be necessary. You in turn should be able to place your customers on the same basis, as the general trend of all lines of business under the present conditions is toward a CASH basis.

We trust that we make ourselves clear in this and are pleased to state in all cases when submitted to us, and where we have submitted the same plan to some of our other customers, it has been very favorably received.

Awaiting with considerable interest your reply as to whether this plan will meet with your approval, we remain,

Respectfully yours,
COLUMBIA TIRE & AUTO CO.

We Stand Corrected

Editor Motor World: We are always interested in the public commendation of Trade Acceptances, as we believe they offer a splendid opportunity to strengthen the financial backbone of our country.

Your article in the Dec. 19 issue of Motor World is very valuable, but we write to ask if you properly stated the condition in suggesting that the holder of an acceptance for \$100 can deposit it at his bank and receive \$95 instead of waiting thirty or sixty days for \$100. We believe you had 5 per cent per annum in mind, which would return \$99.58 to the holder at 5 per cent for thirty days.

Kindly advise us if this is not correct.—The Hess-Bright Manufacturing Co., E. I. Amthor, Credit Manager, Philadelphia.

Thank You

Editor Motor World: Out of the several automobile trade papers which come to my office the Motor World gets first consideration. In fact it is the only one which I find time to read regularly.—FRANK F. BLIVEN, president and manager of Standard Motor Co., Baltimore.

Business Big in Omaha

Editor Motor World: I believe you will be interested in figures which have just been issued reviewing the automobile industry here in Omaha for the past year. These figures are as follows:

	1916	1917
Automobiles	\$25,660,134	\$39,814,157
Automobile sup- plies	4,347,000	7,713,873

This places the automobile industry at the head of the jobbing business here in Omaha.

These figures are authentic, and were carefully compiled by our Commercial Club.

I mention this fact because I have seen figures set forth by one of our competing cities, where a very large amount of imagination was used. I know that in publishing figures of this kind you wish facts rather than guesswork, and you have them in the figures I submit to you.

The record made by us this past year makes us very hopeful in regard to what we may expect in the year to come.

Omaha Automobile Trade Assn.,
Clarke G. Powell, Sec'y-Treas.

War Idea

Editor Motor World: Having read the war ideas of the different dealers and garagemen, which have been a benefit to me, I herewith give you the plan that I have put in operation.

In October I procured a list of all the users of commercial cars in the city. I wrote each one a personal letter bidding for his business, also storage in my garage, offering to do all light repairing and minor adjustments between 6 p. m. and 6 a. m. In this way we have been able to fill our garage with storage and also keep our men busy and still take care of our regular customers in the daytime. We also wash each commercial car once per week gratis. I find that in doing this it is much easier to keep our place clean and also keep the night man busy.—G. R. Austin, Grand Rapids, Mich.

Seventeen Mason Men at War

Editor Motor World: The rubber industry has sent a great number of enthusiastic young men to the front to serve Uncle Sam in the war for the liberation of humanity. One of the foremost of the younger companies, the Mason Tire & Rubber Co., which is conspicuously known for its rapid rise in the tire world, has not been backward in supplying the army and navy and other branches of the national service with human material. The following are the names of some of the men who have joined the service: Frank Masden, Herbert Wright, Reese Harris, Walter Meyers, Leon Grabill, Lawrence Boyd, Howard Price, Edward Dyers, Dudley Smith, Frank McCray, Robert H. Hawley, Clell Cannon, Harold Boak, Ivan Shanafelt, Lee O. Miller, F. E. Colbourn, Wesley J. Wilson.

The Mason Tire & Rubber Co. recently erected a service flag with the full ceremony of flag raising as observed at military posts. The entire factory and office forces were present, and it was a most impressive occasion.—The Mason Tire & Rubber Co., D. J. T. Kennedy, Advertising Manager.

Dance While You Wait

Editor MOTOR WORLD: I have taken on Victrolas, carrying a complete line and 4000 records. This draws a class of people who never before visited my place of business. The center of the salesroom is used for dancing and, believe me, it has made a hit. When people call for work to be done the ladies seem to enjoy themselves and I get some of their money both ways. A fine business, and one that is sure to prove satisfactory to anyone who has a nice place—a good floor and a young lady of musical taste will get 'em going. It certainly has proven very nice for me.—Roscoe Benjamin, Winsted, Conn.

Can You Make a Statement?

Editor Motor World: Concerning an article in the Motor World of recent date about making a statement to the bank, I wonder if it would not be a mighty good thing for a great many of us if Motor World would publish an article on "How to Make a Financial Statement."

I am enclosing copy of a statement as made by a friend of mine, and am wondering if it would not be a good idea to use this and criticize it in the article.

Your article in the Dec. 19 issue on "Getting the Cash" was a corking good one. The Rockford dealers are having a meeting this week Friday, and I believe that at least eight or nine of the garages will at that time go onto the cash basis.—Jud S. Joslyn, Joslyn Automobile Co., Rockford, Ill.

Eleven Grossman Men Gone

Editor Motor World: The following men from our organization have recently joined the Army and Navy: John Caputo, Peter Heinz, J. Fisch, A. Gluckman, M. A. Lazarus, N. Macaluso, M. S. Rosen, R. R. Rosenquist, R. Roemaet, M. Schwartz, C. Zalamsty.—Emil Grossman Mfg. Corp., Emil Grossman, President and General Manager, Brooklyn, N. Y.

Fort Dodge Patriotism

Editor Motor World: In regard to the show at Fort Dodge. In this connection beg to call your attention to the enclosed reprint which tells the story. (Reprint states Fort Dodge will hold no show and has invested in Liberty Bonds the \$10,000 it would have spent on the show.) Will say further that we have just received a splendid letter from the Treasury Department thanking our association for the stand they have taken.

For a time I felt that the move was a wise one from a business standpoint but it looks now as though the dealers would be able to get all the show stuff they wanted, although transportation conditions are not good. There is a tendency on the part of everybody to worry about business, but when you come to figure it up practically everybody has done well during the past year and there is still business in sight for 1918.

We are getting new prospects every day who state that they are going to "buy in the spring." This "buying in the spring" proposition has got to be a mania with the average Iowa farmer.

He figures that there will be some dealer somewhere who will be hungry enough for business to make him the old price. In the past he has usually been able to put this over. I don't know what will happen this year, but from my observation the price cutter is not as numerous as he was a few years ago.

We here feel lost without our show, but at the same time we are satisfied with the action taken, and we are all going out to help boost the Des Moines show.—Fort Dodge Auto Dealers' Association, A. C. Heath, President, Fort Dodge, Iowa.

STATEMENT OF THE BLANK AUTOMOBILE COMPANY, DEC. 1ST, 1917

Assets		Liabilities	
Accounts receivable	\$12,000.00	Accounts payable	\$9,300.00
Car deposit	500.00	Sub-agents' deposits	3,450.00
Notes receivable	12,500.00	Notes payable	28,000.00
Merchandise—new cars	16,500.00	Payroll	600.00
Merchandise—accessories	2,250.00	Reserved for taxes	600.00
Merchandise—car parts	2,500.00	Real estate mortgage	8,000.00
Merchandise—tires	9,500.00	Accrued interest	171.25
Merchandise—oils	400.00		
Equipment	3,000.00		\$50,121.25
Buildings	13,750.00		
Land	10,000.00	Total assets	\$83,450.00
		Total liabilities	50,121.25
	\$82,900.00		
Cash in drawer and in bank	550.00	Unincumbered assets	\$33,328.75
	\$83,450.00	Less capital stock	15,000.00
		Surplus	\$18,328.75

The RETAIL NEWS

NORTHWEST

J. M. Rutt, Brainard, Neb., has bought the garage of J. P. Evans.

Adams Brothers, Edgar, Neb., have leased the Thompson garage.

Sol Cressman, Fairbury, Neb., has bought the garage of Dwight Young.

W. J. Scoutt and J. R. Betts, Kearney, Neb., have bought an interest in the Midway garage from Roy Tonkinson.

Charles Glese, Nelson, Neb., has bought the interest of his partner, Alphas Deyo, in the Sunflower garage.

Ralph Bailey, Shubert, Neb., has bought the Auburn Tire & Rubber Co., Auburn, Neb., from Dale Leeper.

H. W. Cuddeford, Chappell, Neb., has opened a repairshop in connection with the Chappell Auto Co.

A. T. Dunman, Hartington, Neb., has bought the Saxon garage.

Rollin Johnson, Huntley, Neb., has bought the garage of Charles Thomas.

Charles Ewing, Broadwater, Neb., has leased the old City garage.

G. C. Chadderdon, Cambridge, Neb., has bought an interest in the South Side garage.

William Schneider, Falls City, Neb., has bought the Miller garage at Verdon, Neb.

Miller & Greely, Holbrook, Neb., have bought the garage of Wesley Naugle.

Ralph Robinson, Central City, Neb., has bought the garage of Jones & Kelley.

Ben Johnson, Wausa, Neb., for several years employed at the Larson garage, has bought the Auto Shop.

John Pattie, Omaha, has bought the Glenwood Auto Co. garage, Glenwood, Iowa.

Ralph Ramsey, Beatrice, Neb., has bought the G. O. Rains garage at Sixth and Market Streets.

Crumblias-Van Dorn Auto Co., Omaha, distributor of the Velle and Monroe, has taken over the business founded by the late L. E. Doty.

Gates Half-Sole Tire Co., Omaha, has been opened on Motor Row. E. M. Shepard is manager.

Goodwin & Son, Hildreth, Neb., have bought the New & Williams garage.

Western Motor Car Co., Omaha, has moved to the old Overland quarters.

Trawver Auto Co., Omaha, has moved to 1910 Farnam Street.

Elmer and Edwin Sandheim, Albert City, Iowa, have bought the Service garage at Marathon, Iowa, from George Anderson.

Henry Fox, Centerville, Iowa, has bought the garage of Charles Cline.

W. H. Smith, Marshalltown, Iowa, has bought the garage of Charles Gallentine.

Fred Woodard, Shenandoah, Iowa, has bought the interest of John J. Gilmore in the Woodard Garage Co.

O. B. Ellason and Lawrence Johnson, Crooks, S. D., have bought the garage of A. Sandberg.

Chris Relchel, Herrick, S. D., has bought the garage of the Sieler-Horst Co.

Rex Stevens, Vermillion, S. D., has bought the accessory department of the Ketchum Auto Co.

James Coats, Cedar, Ia., has bought the interest of his partner, Chester Davis, in the Coats & Davis garage.

Willis Woods, Cedar Falls, Ia., has bought the Cedar Falls Garage Co. from Chris Oleson and Elmer Rasmussen.

George Shelledy, Bayard, Neb., has bought the Osborne-Waltman garage.

John Vandever, Cedar Rapids, Neb., has bought the Primrose garage from B. E. Farley.

Frank J. Ives has bought the interest of his partner, James Michaelson, in the garage at Tilden, Neb.

D. W. Pumroy, Riverton, Neb., has bought the garage of Edward Simington.

H. E. Ouder Kirk has leased the Lincoln Highway Garage at Silver Creek, Neb.

John Raders, Dallas, S. D., has sold his garage.

W. J. Scoutt, Kearney, Neb., has bought the Gergen Garage.

C. M. Juhnke, Fairbury, Neb., has opened a new service station for storage batteries in the building formerly occupied by Claude Lambert.

P. J. Calligan, West Bend, Iowa, has sold his garage to A. B. Colgan and Gene Graham.

Donn Fickell, Stockton, Iowa, has bought the Marion Munson Garage.

Harold Emigh, Fonda, Iowa, has sold his interest in the Emigh and Thomas Motor Co. to his partner.

New Garages

J. S. & Joakim Hammer....Maddock, N. D.
Chas. W. Walker Garage Co.....Omaha
Richard Fiedler.....New Leipsig, N. D.
Frank Hubbell.....Dunn Center, N. D.
Alfred Jorve.....Halstad, Minn.
Barton & LundBoulder, Mont.
M. F. Sullivan.....Mankato, Minn.
Fred C. Selzer.....Mediapolis, Iowa
A. M. Kindwall.....Storm Lake, Iowa
Standard Oil Co. (Filling Station).Osage, Ia.
McBridge and olger.....Muscatine, Iowa
Abell Tire Vulcanizing Co..Rockwell City, Ia.
Russell Garage.....Des Moines
William Paulson (addition) Blomington, Neb.
Master Truck Co.....Omaha
Omaha Wright Truck & Service Co..Omaha
Bert MooreWilsonville, Neb.
McKinney BrothersEdgar, Neb.
C. C. GilbertSchuyler, Neb.
Sandoz Auto Co.....Verdigre, Neb.
L. E. Jones.....Hartington, Neb.
Ford Garage Co.....Silver Creek, Neb.
Hinshaw-Johnson Motor Co...Norfolk, Neb.
Harry TrippKent, Iowa
Snyder & Kayser.....Webster City, Iowa

MIDDLEWEST

The Schneidewind & Zehms Motor Co., Sheboygan, Wis., has moved into its new building at South Fourteenth Street and Indiana Avenue.

Edward and Albert Jarvis, Oconto, Wis., have purchased the Clark garage, including stock and equipment, from the Oconto Falls Motor Co. and will continue it as a garage and repairshop.

Sweet & Pledt Automobile Co., Benton Harbor, Mich., has remodeled its salesroom and garage on Elm Street.

Ed Sprague & Son, Lake Odessa, Mich., have purchased the Wm. Bennett Co., and will continue the supply business and repairing.

The Michigan Auto Co., Houghton, Mich., has moved to its new garage and office building on Sixth Street. The company handles the Chalmers and Saxon.

Sperry & Scott's Repair Department, in the Three Rivers garage, Three Rivers, Mich., will be conducted by Sperry alone.

Waddell, Gogo & Moore, Overland dealers, Big Rapids, Mich., has taken over the interest of Walter Rondahl in the firm of Moore & Rondahl.

Victor Erickson, Stambaugh, Mich., has opened a garage and repairshop with the Iron country agency for Dodge cars and Harley-Davidson motorcycles.

Andrew Dooley and L. D. Cool, Hastings, Mich., have purchased and are remodeling the Lawrence Service garage.

Rudd Motor Co., Plymouth, Ind., has moved to a new 3-story building.

New Garages

Black Auto Co.,
313 North Eighth Street, Sheboygan, Wis.
Vern LoomisOlivet, Mich.
Keel & FeekAllegan, Mich.

SOUTHWEST

Edward Parker, Fort Scott, Kan., will move his garage to the Hanna Building, which has been remodeled.

C. O. Williams, Howard, Kan., has moved his garage business to Tulsa, Okla.

Luther-McCoy Motor Co., Dodge City, Kan., has bought the repairshop of W. R. Archer, and installed its equipment in the Luther-McCoy garage.

Charles Keepers, Olathe, Kan., has moved his supply store into the Weaver Building.

Clyde Thoren, Westmoreland, Kan., has bought the Goff White Way garage from Clifford Jerome.

Love Brothers & Essex, Douglas, Kan., have moved their repairshop to the Knot Building.

Charles L. Guerin, Jetmore, Kan., has opened a repairshop in the Guthrie Building.

G. A. Probasco, Stockton, Kan., has moved his repairshop to quarters in the Stockton Cooperative garage.

E. D. Ackerman, Cherryvale, Kan., has bought the garage of Chester Francis.

Walter Schlade, Manhattan, Kan., has moved his repairshop to the Whitelock garage.

Floyd Barrick, Coffeyville, Kan., has bought the interest of Richard Barnett in the B. B. garage.

Fred Horn, Glasco, Kan., has leased the Robertson garage, Simpson, Kan.

A. P. Turner and J. C. Bartlett, Arkansas City, Kan., have bought the garage of the Cowley County Motor Co.

Boyles & York, Pittsburg, Kan., have bought the garage of Van Hoy Goodwin.

Roy Knight, Stockton, Kan., has bought the Stone garage from G. A. Probasco.

R. L. Williams and W. E. Marvel, Wichita, Kan., have bought the H. C. Reser Automobile Co. The new firm will be styled Kansas Truck and Tractor Company.

Walter Auto Co., Kingman, Kan., has been sold to C. M. Jones.

Jack Gay, Wichita, Kan., has bought the M. D. Johnson garage.

Dale Sales Co., Garden City, Kan., has been sold to Webb & Armstrong.

Harold Nasco, Sheldon, Kan., has opened the Double Tire Co.

Reed & Shafer, Atwood, Kan., have leased the repairshop of the Northwest Motor Car Co.

L. L. Parrish Motor Co., Larned, Kan., is remodeling the Studebaker garage.

Walter Harris, Eskridge, Kan., has moved the H. & S. garage to larger quarters.

J. L. White, Topeka, and E. W. Hill have bought the Hammett & Griffith garage.

O. J. Church Motor Co., Woodward, Okla., has moved to a new building.

Ed Burch, Lehigh, Okla., has leased the City garage.

Mart Quillen, Wakita, Okla., has bought the garage of D. C. McIntyre & Son.

Hausam Bros., Tulsa, Okla., have sold their business to Campbell & Kesseling.

Homer Compton, Fairview, Okla., has sold the Orient garage to Emil Butler.

W. D. Shepler, Pawnee, Okla., has bought the Oklahoma Tire and Equipment Co. from Henry Wilson.

Kincaid & Vaughn, Henryetta, Okla., have opened under the style Kincaid-Vaughn Motor Co.

E. M. Chapman, Tishomingo, Okla., has bought the McSwain garage.

Texas Battery & Ignition Co., El Paso, has moved from Texas Street to 121 West San Antonio Street.

Williamson Motor Car Co., San Antonio, has moved into a new building.

Charles Goodson, Carrollton, Mo., proprietor of the Motor Car Repair Co., is remodeling the Star Building as a new repairshop.

Robert Gibson, Blackwater, Mo., has bought the garages of Joseph Fisher and Lee O'Neal. The latter place will be used for storage.

Vlets & Harms, Cole Camp, Mo., have leased the garage of J. H. Frederick.

Mark Feltis, Richmond, Mo., has bought the garage of M. Shirley.

Samuel Dysard, Maitland, Mo., has bought the garage of J. B. Burchyman.

J. A. Jones, Lamar, Mo., has bought the garage of S. Stonum.

Pemiscot Motor Car Co., Caruthersville, Mo., has moved into its new building.

O. B. Tindel, Hamilton, Mo., has opened a steam vulcanizing shop.

St. Joseph Motor Co., St. Joseph, has moved to its new quarters at 1221-27 Frederick Avenue. C. C. Tanner is manager.

L. E. Finnell, Paris, Mo., has bought the Smith-Peck Motor Co. garage.

New Garages

Elmer KarlsonHarris, Kan.
George McCallGreat Bend
J. P. KlammerPaola, Kan.
R. A. NorthropGreat Bend, Kan.
M. D. RichettsIndependence
R. D. JoyCaney, Kan.
C. E. PageChetopa, Kan.
Packard-Missouri Motor Co.Wichita
Wilson Garage Co.Ft. Townson, Okla.
J. H. SwaffordHenryetta, Okla.
Scott Auto Repair Co.Okmulgee, Okla.
O. N. BuchananStroud, Okla.
F. A. BlackCameron, Tex.
T. W. DuncanRange, Tex.
Nagel Motor Co.Guero, Tex.
Bridges & McDoughHowe, Tex.
P. A. SmithVerona, Mo.
C. W. McClintockEminence, Mo.
Delko GarageSt. Louis

MOUNTAIN

E. W. Sharp has installed a branch vulcanizing plant at Caspar, Wyo.

Bennett Bros. & Anderson have bought the Winger Bros.' Garage and the Merlon & Foote Garage, Hugo, Colo.

New Garages

Ford Auto Sales Co.Fowler, Col.
Bessemer Motor Co.Pueblo, Col.

SOUTH

B. B. Kent, Americus, Ga., has reopened his repairshop on Lamar Street.

Criswell's Garage, Macon, Ga., has added a vulcanizing plant.

Claude Mauk & Co., Americus, Ga., have opened a repairshop on Jefferson Street.

CANADA

R. Phillips, Winnipeg, who has been doing a general supply business, has formed a partnership with George Houghton. The new firm will be styled Phillips & Houghton, and will occupy a building now being erected opposite the Grain Exchange.

Harry Parsons has opened a new accessory supply station on Edmonton Street, Winnipeg. The store will also be equipped as a service station for battery charging and repairs.

Getting a Catalog Read

This Book is Presented

No. 21

To

Town

State

This Catalog has been compiled and arranged by this Company at considerable cost, for the benefit and convenience of our customers exclusively. We earnestly request that you use it for your own convenience, and not allow anyone to purchase it at any price, or take it from your premises.

THE DINE-DEWEES CO.

PLEASE DETACH HERE. FILL IN AND MAIL RETURN CARD BELOW

THE DINE-DEWEES CO.

Canton, Ohio

We have received your Automobile Accessories Catalog No. A-18, and will keep it for our own exclusive use.

Catalog No.

21

IMPORTANT—Return this card and you will receive revised PRICE LISTS

THE DINE-DEWEES CO., a jobber in Canton, Ohio, makes sure its catalogs get to the right place by pasting this return card inside the front cover. The lower half is not pasted down and is to be torn out and mailed back to Dine-DeWees. With this catalog the company sends a letter calling attention to certain features in the book, one of which is a statement that it is "Exclusively Wholesale, Dealers' Prices to Dealers Only, and Positively No Goods Sold at Retail."

More Valuable Than Sugar

Editor MOTOR WORLD—We have missed getting our copy of MOTOR WORLD for two weeks, last week and this, and we prefer doing without sugar in our coffee to missing this weekly magazine, which we have been taking for two years. Please send the last two issues. We sent our renewal several weeks ago.—M. O. SIMPSON, ROYAL SALES CO., Front Royal, Va.

Wisconsin Asks:

Can We Get Enough Cars?

*Her Dealers Sold 49,000 More Cars in 1917
Than in 1916—They're Out for as Big a Gain in 1918*

MILWAUKEE, Jan. 19—This is the most momentous year in the history of the motor car trade of Wisconsin, as it is for the entire industry of the United States.

With the best year on record behind them, Wisconsin distributors and dealers, gathering in intimate conferences at the tenth annual Milwaukee show, which is the yearly opportunity for frank and full discussion and interchange of ideas and opinions, seem to hold but one thought—

Will we be able to obtain enough cars to fill our requirements?

It is not a question of a market, or ability to sell that market, but a problem of furnishing enough stock to supply its demands.

Business conditions similar to those which made 1917 Wisconsin's greatest motor year presage an equally great new year, or a greater one, so far as the number of prospective buyers of motor vehicles is concerned.

The public purse still is well filled. The inclination to purchase motor cars is stronger than ever, in spite of advancing prices.

Watch Out for a Shortage

It is a conservative statement to say that every motor vehicle that the manufacturers put into Wisconsin during 1918 will be eagerly absorbed, and there will remain an aching void unless the number offered is not greater than it was in 1917.

At this time the Wisconsin average is approximately one car to every seventeen inhabitants, population being figured at 2,800,000. In 1916 the number of cars averages one to every twenty-four inhabitants. This is not the best showing made by any State in the Union, but it indicates that the growth of the use of motor vehicles in Wisconsin is a healthy one and selling is not being overdone by any means, with no possible likelihood of saturation of market.

Talks with leading distributors and dealers at the Milwaukee show serve to indicate that Wisconsin's record in 1917 represents an achievement. In the face of some of the greatest difficulties that the motor car trade has ever been obliged to meet, a total of more than 10,000 cars were sold in Wisconsin than predicted at the beginning of last year.

The conditions under which distributors and dealers worked during the latter part of the period are too well known and understood to make explanation necessary. Yet the total business of practically every dealer showed a very appreciable gain over 1916.

At the 1917 Milwaukee show representative men in the Wisconsin trade prophesied that the State in 1918 would take at least 38,500 cars, which was figured to mean that business would have to be increased one-third over 1916. A few men then characterized as ultra-optimists predicted that the State would take as high as 40,000 cars in 1917, but an average of predictions placed the probable number at 38,500. To-day this figure looks exceedingly small, considering that the actual absorption reached 48,894 cars.

She Has 200 More Dealers

Nearly 200 dealers were added to the ranks of the Wisconsin trade last year on the face of figures of dealer organizations. In 1916 the number of licenses issued to dealers was 1970, and last year it was 2167, a gain of 197. Dealers' license figures include manufacturers of passenger and commercial cars, but this fact does not materially alter the situation with respect to net gain in the number of dealers. In six years' time the number has doubled.

On the basis of 2167 dealers, it is figured that every dealer in Wisconsin sold on an average of 22.5 cars during 1917, while in 1916 the ratio was one to eighteen.

Because of unprecedented conditions and the kaleidoscopic changes that are taking place every day, it is not so easy for the Wisconsin trade at this time to make more or less accurate predictions on 1918 business as it was in former years. As already indicated, the trade feels that the number of cars produced and allotted to Wisconsin this year will not suffice to cover the demand. In the absence of any definite knowledge as to

the extent of production, it is extremely difficult to estimate how many cars Wisconsin will take. All things being equal, however, predictions made at the Milwaukee show this week quite generally agree that the State will take 35,000 cars in 1918, and more if they are available.

The office of the Secretary of State at Madison, which is in charge of motor registry, is counting upon an issue of 200,000 licenses to owners this year, and its contract for the supply of plates fixes that figure for deliveries. That would indicate a gain of 35,000. The Secretary of State's estimates always have been found to be considerably lower than actual needs, and they probably will be this year. The office also is figuring on an issue of 1800 dealers' licenses, which would be about 350 less than in 1917. But it never has been guilty of over-estimating in this direction either.

Save only for the natural hesitancy that accompanies a state of war, but which has gradually been dissipated, conditions in Milwaukee and throughout the State are such that the year seems to be bound to be the best that the trade has yet experienced. The past year unquestionably was the most profitable of all and the influence of such a condition never is immediate. For this reason it is the confident impression of dealers that the results of the great year of 1917 must be reflected throughout 1918.

Bank Clearings at High Level

For instance, bank clearings at Milwaukee last year reached the unprecedented figure of \$1,300,560,926 compared with \$1,042,716,296 in 1916 and \$836,384,564 in 1915. December was the largest month of the year in this respect. The total aggregate resources of national and state banks in Wisconsin at the close of the year was \$617,775,758, a gain of more than \$66,000,000 over a year ago. During the last four months of 1917 Milwaukee bank deposits alone

Wisconsin Registration for Six Years

	1917	1916	1915	1914	1913	1912
Motor cars	164,531	115,637	79,791	53,161	34,646	24,578
Dealers	2,167	1,970	1,582	1,202	1,393	1,052
Increase in motor cars	48,894	35,846	26,630	18,515	10,068	....
Percentage of gain	42	44	50	53	45	....

increased \$6,212,000 and reached the enormous total of \$141,036,000, never before approached. The total resources of Milwaukee banks increased \$14,000,000 in the same time, and stood at \$176,000,000 at the close of the year.

The aggregate value of manufactured products of Milwaukee industries during 1917 is figured at \$595,520,102, which is a gain of nearly 25 per cent over 1916. Wages paid during the year increased 16 per cent. Milwaukee is essentially a manufacturing city, in which the iron, steel and machinery industries predominate, and it has enjoyed exceptional prosperity. The rest of the State, which is essentially agricultural, has accrued great financial benefit and prosperity from the high prices received for cereals, dairy products, live stock and other products of the soil. The buying power of the people has never been so great, even in the light of heavy demands in taxes, excises, investments and contributions for the purpose of prosecuting the war to a victorious and successful conclusion.

So the situation may aptly be summarized in these brief words: If the manufacturers of motor vehicles will produce the goods, Wisconsin will take all it can get.

Show Draws Real Buyers

The outstanding feature of Milwaukee's tenth annual show is the fact that the attendance so far has consisted principally of persons vitally interested in motor cars as buyers rather than as sightseers.

The crowds have not been quite up to the mark for the corresponding days of 1916, when all records were broken, but it would hardly be expected that with 12,000 to 15,000 young and middle-aged men of Milwaukee at the front or in camps, the attendance at the show could establish new records. Nor are the extreme weather conditions that have prevailed for ten days or longer conducive to strong attendance. But there is no question that the "quality" of the crowds this year is far and away above that of former years, with particular respect to the sound and solid interest displayed in the 1918 offerings of passenger and commercial cars, accessories, supplies, etc. It must not be understood that the attendance has shown a decided falling off, for that is not true. The crowds, as a matter of fact, are much larger than anticipated by the Milwaukee Automobile Dealers, Inc., which again is staging the exposition.

The tenth Milwaukee show could hardly be bigger than past events, because the Auditorium is a concrete building and not elastic. But it is by far a better and more interesting exposition than has ever before been presented. In one way the show is larger, for the very limitations of the show building, which prevent it from being bigger in the general sense of the term, have made it necessary for the M. A. D. to divide the passenger and the commercial car sections because of the lack of room to hold both at the same time, as heretofore. Consequently, the first seven days, Jan. 16 to 22, are being

devoted exclusively to passenger cars, and the last three days, Jan. 23 to 25, to commercial cars. Even then the demands for space have been so great that all available area is required for exhibits—and more.

Decorations Cost Only \$5,000

By an expenditure of more than \$5,000 in decorations, scenery, etc., the M. A. D. this year has been able to offer a show which in beauty and attractiveness equals if not excels even the best efforts at previous New York and Chicago shows. The Auditorium lends itself much more readily to artistic decorative treatment than either the old Hippodrome or the Coliseum and doubtless is a truer show building than the Grand Central Palace.

Forty-six Milwaukee dealers, practically all of them distributors in Wisconsin and Upper Michigan or lesser territory, are showing cars representing seventy-eight factories. Exhibits are limited to five models per exhibitor because of limitations of space. This makes a total number of 230 cars or chassis displayed in the passenger car section for seven days. There are not so many cut-open or skeleton chassis shown as last year, but this is due largely to the demoralized condition of traffic resulting from the great blizzard of Jan. 11 and 12. Numerous show cars still are in transit, even some shipped by express. They are arriving as the snow blockades are being overcome.

Added interest is lent by a style revue, put on every afternoon and evening on the main arena stage by arrangement with Gerretson Co., one of Milwaukee's leading women's wear houses. Fifteen models brought from New York show the latest garments, and the men as well as the women form a huge crowd in front of the stage whenever the revue begins. Instrumental music, of course, is furnished in good measure, a brass band playing in the main arena and orchestras in the smaller halls and rotunda. Vocal entertainment is also provided afternoon and evening. These features do much to keep interest strong and the crowds moving.

How the Show Was Advertised

The drastic fuel administration order announced Wednesday night at first was construed as possibly applying to the show during the five-day period prescribed for closing industrial plants, but it was soon determined that the exposition would not be affected. However, it is likely that the show will not be open on Monday, although the M. A. D. believed that its show could not be classed as an entertainment, but an industrial exposition. However, it was stated that the association would cheerfully abide by any regulation promulgated by the Government.

To introduce and advertise the show, the association is publishing a series of ten full-page advertisements in the leading afternoon and morning papers of Milwaukee. These were prepared by E. LeRoy Pelletier, for many years one of the best known advertising men in the motor car industry. The first ad was

published on Jan. 14, two days before the show opened. The final page will be run Jan. 24.

It is these ads which are largely responsible for the earnestness of the crowds attending this year's show, already characterized as an outstanding feature. Nothing excepting a view of the show itself has done so much to improve the state of the public mind as the Pelletier copy. The first ad was a general announcement of the show, and it was followed by nine distinct pages of preachments covering various phases of the industrial situation at this time with special reference to the motor vehicle.

What the Ads Explain

The purpose of the preachments was stated as follows:

"We will state in simple, forceful terms some sound facts on the subjects about which there has been much confusion—much misunderstanding—and a consequent indecision and inactivity in all lines of business, the motor car included.

"Much false logic—more plain sophistry—and a lavish application of harmful, psychological suggestion have been disseminated, most of it by persons whose intent was of the best but whose knowledge of economic principles was limited.

"The handling of economic subjects by writers is a good deal like the preaching of socialism.

"We are all socialists potentially—all seeking the practical way to make the World Safe for Democracy, economically as well as politically.

"But when the effusions of socialistic speakers and writers filter through the minds of the ignorant or the careless reader it frequently comes out in the form of anarchy or nihilism.

"What their ignorant reader decides is entirely different—and often is the antithesis—of that which the intelligent reader derives from the same words.

"And so we find much misunderstanding as to what is our duty in this wartime: where we must conserve, where spend lavishly—in order to accomplish that which is our supreme desire, namely, to defeat the enemies of liberty—to win the war.

"Read the series—it will set you thinking, and maybe set you right on some points that have been hitherto obscure to you."

The subjects of the nine preachments and dates of publication are: Jan. 15, "Inevitable—A Shortage of Motor Cars in 1918"; Jan. 16, "As We Said Yesterday, Prices Will Be Higher"; Jan. 17, "There Is Not—Will Not Be—a Shortage of Gasoline"; Jan. 18, "Are You Practising False Patriotism?"; Jan. 19, "Is the Motor Car a Non-Essential?"; Jan. 20 and 21, "We Are an Extravagant People—We Americans—Thank Heaven!"; Jan. 22, "Some More on That Subject of Perverted Patriotism"; Jan. 23, "War Always Brings Prosperity During the War—and Afterward"; Jan. 24, "The Farmer Owes Much to the Motor Vehicle."

The ten full pages were published at the expense of the M. A. D. and supplanted the usual volume of display advertising of individual dealers during show periods of past years. Thus public attention was effectively concentrated; the "copy" was exceptionally forceful, and much economy accrued to the individual dealer.

Chevrolet 1-Ton Truck to Sell for \$1,245

Worm-Driven Model With Full Electric Equipment

CHEVROLET SPECIFICATIONS

Capacity, tons	1
Price	*\$1,125
Wheelbase, in.	125
Tires, front	31 x 4 pne.
Tires, rear	32 x 4 sol.
Bore, in.	3 11/16
Stroke, in.	5 1/4
N. A. C. C. hp.	21.76
Speed, r.p.m.	25
Speed, m.p.h.	25
Gear-ratio in high gear	7 to 1
Final drive	Worm

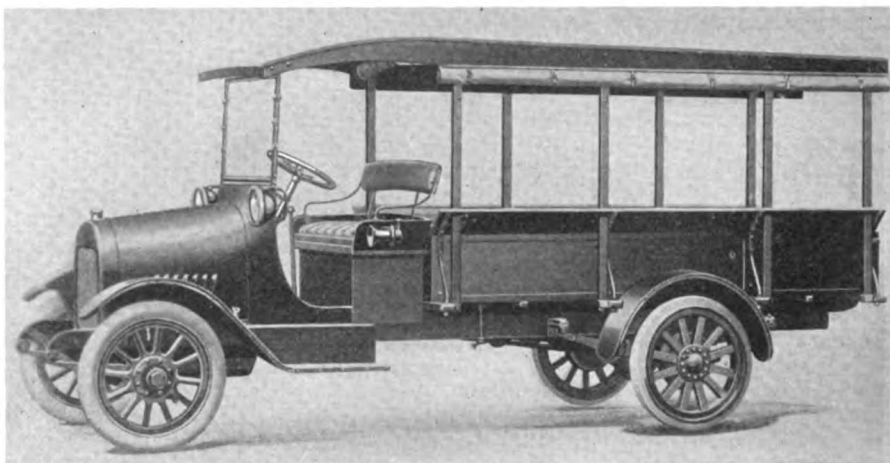
*With body without top, \$1,245; with eight-post top and body, \$1,320.

THE latest of the passenger car companies to meet the demands from all sides for motor truck models is the Chevrolet Motor Co., which has just brought out a worm-driven 1-tonner selling at \$1,125 in the chassis, with an express body at \$1,245, and with an eight-post top and body at \$1,320 f.o.b. Flint, Mich.

The new truck offers the dealer a good selling proposition in that the chassis price of \$1,125 is \$486 under the average price of all 1-ton trucks offered on the market as of Jan. 1, 1918. Furthermore, the newcomer is equipped with a unit powerplant, electric lights and an electric starter, and has a frame sufficiently long to carry a standard body with a clear loading space of 9 ft. 6 1/2 in. and a clear inside width of 3 ft. 9 1/4 in. The fact that the Chevrolet company offers its truck in the chassis with an open flareboard express body or with an eight-post top and side curtains gives the dealer greater possibilities for more nearly meeting the requirements of a large number of purchasers. The large loading space of the body also enables the vehicles to be used in almost every conceivable kind of business.

The truck is fitted with a valve-in-the-head type engine with a piston displacement of 224.3 cu. in. It is mounted under a conventional hood forward of the dash and is carried on arms extending to each side of the frame. The rear end is carried on two heavy malleable iron castings hot riveted to the frame and held in place by two drop-forged U-bolts. The front is hung in shackles bolted to the motor arms and to two substantial brackets hot riveted to the frame. The cylinders are cast in block and are provided with a removable cylinder head. Lynite pistons with three rings are employed and the crankshaft is carried on three main bearings.

The engine is water cooled by means of a centrifugal pump circulating the water through a cellular type radiator with a heavy brass core and a pressed steel casting. The radiator is mounted on two V-shaped slotted steel springs bolted to the front cross member and resting on two steel washers. A 15-in. pressed steel fan is employed and is driven by a V-shaped leather link belt



The new Chevrolet 1-ton truck chassis sells for \$1,125 and with the body illustrated at \$1,320

A Zenith carburetor is used with a hot-air-jacketed intake manifold. The carburetor is fed by gravity from a 13-gal. tank located under the driver's seat. All the air enters the carburetor through a combined strangler and temperature regulator which provides a cold-air opening during warm weather. A Monarch suction governor is installed between the carburetor and the intake manifold to limit the speed of the truck to 25 miles an hour.

Ignition is by a Remy distributor. An Auto-Lite generator is employed and begins to produce a charging current at a vehicle speed of about 6 miles per hour. The electric starter is also an Auto-Lite product. It is mounted on the rear motor arm and operated through a Bendix drive.

From the engine the drive is taken through a cone clutch with a leather facing and thence to a three-speed selective gearset. The gearset is carried on a frame bolted to the flywheel housing, and can be quickly and easily removed, being located directly under the driver's floorboards.

From the gearset the drive is taken through a seamless steel tube propeller shaft with three universal joints to the worm-driven rear axle, of which the worm and wormgear are made by the Cleveland Worm & Gear Co. The rear axle housings are of malleable iron and the axle shafts are of the semi-floating type.

Hotchkiss drive is employed, both the torque and propulsion being taken through the springs. Two separate sets of brakes of the internal-expanding type are located on the rear wheels. Each brakeshoe is 14 in. in diameter and 2 in. wide. Both sets of brake rods are provided with turnbuckles conveniently located to take up all brake wear. The frame is of open-hearth rolled steel channel 4 in. deep, and is provided with three cross members.

The wheels are of the artillery type

and have twelve hickory spokes, front and rear. The front wheels are fitted with Timken roller bearings and are provided with malleable iron hubs with flanges of pressed steel. For greater speed, pneumatic tires are employed in front and solids in the rear. Left steer and center control are employed.

The engine hood is of heavy sheet steel with three hinge rods. An anti-squeak is used on both ends of the hood to prevent rattling, and the sides each have seven louvers for better air circulation. The cowl is also of heavy sheet steel riveted in place and carrying the instrument board, on which are mounted the speedometer, carburetor choke, ammeter, oil pressure gage and the lighting and ignition switch. Passenger type front and rear fenders are used. They are of pressed steel in one piece and are crowned and attached to the frame side members by a heavy pressed steel V-section iron with a heavy sheet steel apron extending to the frame and completely enclosing the sides and protecting the runningboards from mud and water.

Chevrolet General Offices Moved to New York

NEW YORK, Jan. 19—The Chevrolet Motor Co. has moved its general offices to Broadway and Fifty-seventh Street, New York. The New York store will be located in the same building.

Ohio After Short Measures

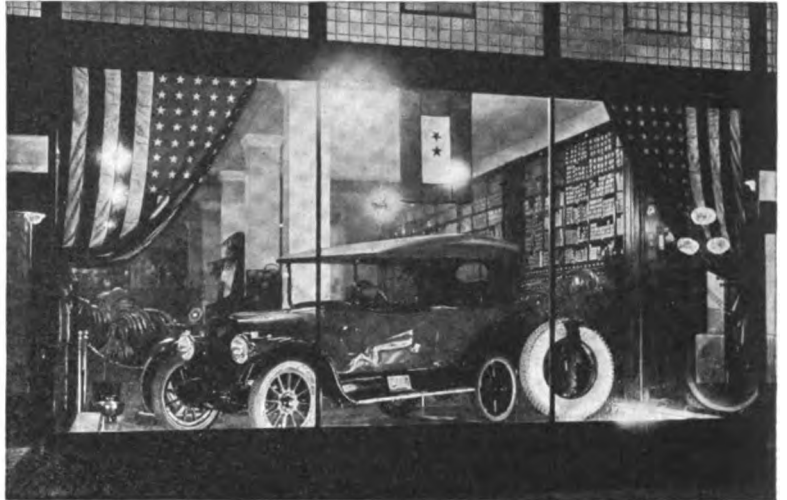
COLUMBUS, Jan. 21—P. Gault, head of the State Dairy and Food department, which has charge of weights and measures, has filed forty affidavits against oil companies doing business in Cleveland, Akron, Mansfield, Toledo, Canton, Marion and Columbus. The affidavits charge shortage in measure in selling lubricating oils.



It can't be seen here, but across the building over the front of the doors it says: "Henry I. Beers Building, 1877-1916"

Where One Jobber Starts the New Year

The Beers Brothers Co., Oil City, Pa., a jobber, starts 1918 in a new home that is modern throughout



This is a closer view of the front window shown at the left. The service flag has two stars. The car is a Pilot



The shipping department is well systematized and is so operated that orders go out in a minimum of time



This is the interior. It looks like "retail" but is "Wholesale only." Palms and ferns help out a lot



The reception room



Secretary W. S. Van Horn's Office



Treasurer P. C. Beers' office

Fuel Order Shuts Up Factories

(Continued from page 9)

In saving of coal the 5-day shutdown of the Ford company will mean about 50 carloads, or 12 carloads a day. The normal consumption is from 17 to 18 carloads per day.

The number of men thrown out of employment in Detroit alone is approximately 200,000. These men will not be paid during the lay-off period so far as is known by any of the companies, although one or two still have the matter under consideration. To give an idea of the number of men affected by the

order, the Ford company has laid off temporarily 35,000 men, Willys-Overland 8000, Buick 12,000, Studebaker, Detroit plant, 3000, Continental 3000, Cadillac 6000, Packard 8000, Timken, both plants, 5000, and Hupmobile 12,000.

Some of the companies making motors and feeding back the power developed by these motors on test back into the lines really lose coal instead of gaining it by the closing order. A rough estimate of the coal saved by some concerns is: Hupp, 10 tons a day; Packard, 35 tons a day; Studebaker, 150 tons a day; Timken, 100; Buick, 250, and Willys-Overland, 200.

the men work an extra hour on Tuesday, Wednesday, Thursday and Friday, and in New York City work 4 hours Saturday afternoon, which will give an extra 8 hours, thus making up for Monday.

The night before the order went into effect the White service station operated until midnight in order to give the men extra hours of labor and then cut down largely.

One of the difficulties encountered by operators of garages and service stations is that in order that there be any operation at all it is a necessity that at least one elevator be run, and this requires power. Much of the power in New York City is derived from central stations, and the New York Edison Co. stated that it would furnish power as usual and leave it up to the consumer as to whether he used it or not, the company itself declining to accept any liability in the matter.

The dealers in Newark, N. J., who have been running co-operative advertising have in this week's Sunday paper a page advertisement as to how the lost days of production due to the fuel orders are to be regained. The tenor of the ad is that these lost days must be regained through greater effort and greater efficiency, and that one of the greater efficiencies especially in transportation is in the use of motor vehicles.

Following is a letter sent out by the Philadelphia association to its members:

TO MEMBERS OF PHILADELPHIA AUTOMOBILE TRADE ASSOCIATION:

In order that we may uniformly conform to the regulations of the Fuel Administrator, as issued today, with regard to closing down every Monday from January 21st to March 25th inclusive, and also to assure, as far as business permits, average weekly employment to all men employed on the hourly basis, the Board of Directors of the Philadelphia Automobile Trade Association suggests that plants be worked one hour additional each day from Tuesday to Friday inclusive, and to work enough additional hours on Saturday afternoon to make up the one day lost by closing on Mondays, during the period prescribed.—A. E. Maltby, Vice-President.

New York Shuts Tight

NEW YORK, Jan. 21—A trip along the row this morning showed that in not a single instance was a salesroom doing business as usual or a service station or shop in operation.

Many doors were locked. Some offices were open for an hour or two to dispose of mail, but in no case was there light or elevator service, and there was heat only sufficient to prevent freezing of sprinkler systems or water pipes, except in one or two instances where a store occupied part of a building devoted to dwelling purposes.

Harrisburg Remains Open

HARRISBURG, PA., Jan. 21—Secretary J. Clyde Myton, of the Harrisburg Motor Dealers' Association, reports that their attorney advises that this ruling does not affect members in any way; that it is most likely made against people who are manufacturing new products; that members are allowed to keep places of business warm, customers' cars

Dealers, Too, Shut Up Shop

Service Stations Plan to Make Up Time by Starting Earlier and Closing Later

NEW YORK, Jan. 21—After the first confusion following the receipt of the Garfield order regarding industries, dealers throughout the United States are proceeding on what is practically a uniform plan, although the plan was laid out without any organization between different cities.

In New York the dealers decided that during the 5-day period, with the exception of Monday, they would shut down so far as possible. They would use no more elevators than were absolutely necessary for getting cars in and out of service stations; they would cut off heat wherever possible and to as low a degree as possible, and would cut down light as far as possible.

Some of the service stations use a very limited amount of power to operate the few grinders, drill presses and other machines that are necessary, and it was decided to do without these if possible. It was decided that it might be possible to operate salesrooms without much light or heat. Besides these resolves, several service stations practically closed down Saturday, finding it very difficult to run at all under these restricted conditions.

The dealers in Philadelphia curtailed there as far as possible, but nevertheless kept open; everywhere, however, dealers agree that it will be necessary to close up on Monday.

A number of automobile shows come within the restricted period. The Philadelphia show is being held as usual, the only large show that has been called off being that in Rochester, where the dealers were all ready to go ahead with the exhibition but decided at the last moment not to open at all. This show has been abandoned.

A number of telegrams were sent out by Motor World to the show managers. Buffalo will open as usual and run for the full week.

Baltimore states that the fuel order will have no effect on the order there.

Bridgeton, N. J., will open the show

on the date set. The salesrooms will be open as usual except Mondays, when they will close.

The Cleveland show will operate as usual. In Cleveland, Monday will be considered as a Sunday, and what amounts to Sunday operation will be in effect on that day. Inasmuch as the Cleveland show always starts on a Saturday and is open on Monday, it will be open on Monday.

In Providence, R. I., salesrooms will close on Monday as on Sunday. The show will run as usual.

In Kansas City the dealers are considering confining all advertising from this state on the show to one comprehensive campaign to boost the motor car business.

In Allentown, Pa., garages are maintaining sufficient heat to prevent damage and are eliminating every unnecessary bit of work. The show will open as usual.

In Scranton the show which was scheduled to open on a Monday will not open until Tuesday. Garages and salesrooms will keep open so far as possible with a minimum amount of heat and light.

Harrisburg, Pa., interprets the order to mean that the show must close Monday, and such will be done until the decision is changed.

In Detroit Manager H. H. Shuart says the show will observe a 9-hour rule and it may or may not close Monday. Salesrooms will close Monday and salesrooms and service stations will be open only 9 hours.

In York, Pa., the show has been postponed. Salesrooms connected with garages and using the same heating plants will not close.

Prevent Loss of Wages

One of the chief concerns of dealers everywhere has been to prevent workmen from being deprived of their wages, and in order to prevent this cutting down the suggestion everywhere is that

from freezing, and offices in livable shape, and that if workmen see fit to operate in garages, buildings or offices, heated as it is necessary to heat them for the above reasons, they are entirely licensed to do so; that the general public who store and use their cars daily have no license to be annoyed, or to assume the risk of their cars being frozen or the annoyance of them being drained.

The attorney suggests, though, that if any of the men were manufacturing tires and running a steam vulcanizer on new work, it might be advisable to close that down. This the association has instructed dealers to do.

Columbus Observes Rule

COLUMBUS, Jan. 21—A meeting of the Columbus Automobile Trade Association held immediately after the announcement of H. A. Garfield of his fuel conservation program decided to comply with the order without protest. As a result all automobile agencies, repair-shops and service stations were closed.

St. Louis Undecided

ST. LOUIS, Jan. 21—R. E. Lee, manager of the St. Louis Auto Show, has been unable to get a definite promise from the Coal Committee as to the holding of the show Feb. 18 to 23. The Coal Committee plainly hopes that the heroic measures now in force here and in other parts of the country will permit the show to take place but, the members of the committee say, much depends upon the weather and other conditions.

The Show Committee will go ahead with the plans. Announcement will be made this week on the final conclusions as to space. The present indication is that each exhibitor will be restricted to three cars and that the accessory exhibit will be placed upon the third floor of the building, with elevator service.

Baltimore Little Affected

Baltimore, Jan. 21—The fuel administrator's order almost passed over Baltimore. Only one firm, the Habershaw-Miller Co., Republic distributor, closed for the five-day period. On Saturday the Baltimore Automobile Dealers' Association obtained a ruling from the Maryland fuel administrator which allowed them to do business. In consequence a letter was sent to the trade giving the following opinion:

1. Spirit of the order to be carried out rather than the letter.
2. Sufficient fuel may be burned to prevent freezing or injury to property.
3. No objection to working provided no fuel is burned in excess of requirements to prevent freezing.

In consequence practically all of the shops had their men on the job but did not use power and only such lights as were necessary. Dealers spurred their salesmen to go ahead with outside work and thus the industry was not greatly affected.

Indianapolis Practically Suspends

Indianapolis, Jan. 21—Work in the Automobile manufacturing and selling fields was practically suspended. The Premier Motor Corp., which is working on government contracts, is the only one in operation to-day. Nurdyke & Marmon are permitted to continue only on aviation work. The plants of

the Cole, Stutz, National and Empire have been closed, as are all plants in Central Indiana not engaged on government work.

Milwaukee Plants Entirely Closed

Milwaukee, Jan. 21—With the exception of the Wisconsin Motor Mfg. Co., every passenger car, motor truck, engine and parts factory in Milwaukee and vicinity are entirely closed for the five days. More than 7500 men are out of employment. The Wisconsin company closed Friday, but was permitted to open Monday to continue work on Liberty engines. All told only five or six of 2300 industries are in operation. Garages and repair shops closed tight on Monday.

Kansas City Wheels Are Turning

Kansas City, Jan. 21—No manufacturing industries have been closed here so far. Fuel administrators of Kansas, Missouri, Arkansas, Oklahoma, Nebraska and Iowa are in conference here. It is their belief that industries will not be disturbed in their states. Office buildings and retail stores are being closed.

Minneapolis Shops Close Up

Minneapolis, Jan. 21—With few exceptions all car, truck, tractor and accessory factories shut down during the five days. Tire vulcanizers, repair shops and oil stations have also been closed. The following numbers of men are temporarily out of employment: Ford Motor Co., 600; H. E. Wilcox Motor Co., 300; Wilcox-Bennett Carburetor Co., 100; Pence Automobile Co., 200; Maxwell branch, 40. Both Chevrolet and Willys-Overland branches have small forces out. The tractor concerns have about 4000 men out. The tractor men are particularly anxious over the setback the enforced holidays has brought.

All of Boston Lays Down Tools

Boston, Jan. 21—The entire motor district was closed to-day, nearly as effectively as if it were Sunday. A few places were open merely to take care of mail. Service stations and garages were allowed to keep open to repair cars and trucks at present in use. All told more than 200 dealers in cars, tires and accessories locked their doors, thus throwing about 5000 employees temporarily out of employment.

Providence Show Draws to Close

PROVIDENCE, R. I., Jan. 19—The annual show of the Rhode Island Automobile Dealers' Association came to a close here in the State Armory at midnight.

The attendance was small, only one night—Wednesday—was there anything like a real crowd. The price of admission was cut in half from last year, being only 25 cents.

Twenty-three passenger cars by 21 exhibitors, one exhibit of motorcycles, 14 exhibits of accessories, and an even dozen commercial cars by 10 exhibitors represents the varieties of makes that were placed before the public.

Will Not Move Girl's Office

WASHINGTON, D. C., Jan. 21—The plan for moving the offices of Christian Girl and the Military Truck Production Board to the Union Depot Office Building has been abandoned. Mr. Girl and his organization will remain at 1421 I Street. J. G. Utz, supervisor of inspection and engineering of the board, has removed his offices, however, from Mr. Girl's division to the Union Depot. The Military

Truck Production Board, which, as was recently stated in these columns, now includes the functions of engineering and maintenance as well as production of Liberty trucks, is now known as the Motor Transport Section of the Office of the Quartermaster General.

Embargo Tidewater Shipments

WASHINGTON, D. C., Jan. 21—It is reported that the railway director at the recommendation of the Fuel Administration will place a complete embargo on all shipments of supplies to tidewater points for some time beyond the present drastic fuel order time limits, until the congestion at all of the big Atlantic ports is cleared.

Transportation Real Need

(Continued from page 8)

sacrifices and our work will be heralded down for ages to come.

"It is up to us to prove as American men by our work, by our staying on our jobs, by our optimism rather than pessimism, that we are worthy of the heritage we received when that flag was handed down to us to preserve and protect by our forefathers who fought the same kind of fight that we fight now to preserve it.

"So, gentlemen, do not get discouraged. We cannot win this war with crepe on our noses. We cannot win this war by going around with sad faces. We must win this war, gentlemen, with our souls.

"We have to put our souls in first.

"We have to realize that all the money we have is not worth a tinker's dam to us if we do not win this war.

"We have to put aside all our selfishness. We have to obey orders when they come. We have to counsel and advise before the orders are issued, so that they may be issued intelligently and profitably, but after they are issued, let's get down and obey them.

"We must win this war. We have to do it this way. We have to be right spiritually. We have to be right physically. We have to be right morally. We have to be right financially, and we have to be right industrially. We must have all those things.

"I do not think anybody has any right in the automobile business to feel anything but glad and happy because he is going to be allowed to continue.

"There will be no curtailment of automobiles.

"Nothing like that is contemplated, and if we would most help this Government in war work, we have got to be let alone with our potential strength of organization to do this work for it, and at the same time do our part in solving the transportation problem.

"Let us fight, fight from now on. Let no man put his heart now on any premature peace talk.

"We do not want anything but 100 per cent in devotion of souls and mind and body to the work of this country, and our praise—if there is any—we will probably never get, but our children after us will rise up to call us blessed."

Railroad Conditions Hurt Trade on Coast

Cars Can't Be Secured by Rail and It Is Too Far to Drive from Factory and Get List

LOS ANGELES, Jan. 21—Southern California motor car dealers are optimistic over the prospects for 1918. The transportation problem is the only one causing uneasiness. If the railroads are prohibited from shipping motor cars, it will mean the end of the business in this part of the country owing to the distance from Eastern factories making drive-aways impractical. It would be impossible to dispose of a car here at anything like the list price after it had been driven overland 2500 or 3000 miles. This subject is of far graver concern than the increase in prices and war tax.

Some dealers have been entirely without cars for three weeks, and the factory gives them no encouragement. To all requests the reply is made that the manufacturers cannot get railroad cars in which to make the long shipment. At various points in the country between the factories and Los Angeles are cars in warehouse that were destined for local consumption. They were taken from the freight cars in order that they might be used for other purposes, according to explanations received here.

The number of motor trucks in the hands of dealers is very limited, and owing to the activity of manufacturers in supplying Government orders dealers are at a loss to know whether they will get any more at all when their present supply is exhausted. The only bright lining in the truck dealer's cloud is that he is able to make better selection in the sales he accepts. The buyer who pays the most cash will get the truck and the long-time payment and trade in of an undesirable used truck are being eliminated.

Tourists have been liberal buyers of passenger cars here during the winter months, and the number of the visitors who will come this year is more problematical than ever because of railroad conditions. Statements have been issued by railroad traffic managers that the tourist trade will not suffer, but hotel men say if this is so the visitors are exceptionally late coming this season. None of the big hostelrys has experienced the rush for accommodations customary at this time of the year.

There is a feeling among the trade that dealers handling old, well-established lines of cars will enjoy a conservative business, although probably not so many cars will be sold. The public will be keener and more discriminatory buyers than ever before during 1918, and it is the representative of the new make of car such as would create a certain demand in itself, because of the novelty, that will have to watch both sides of the ledger. Buyers are not going to take well to uncertainties, in

the opinion of the men here most experienced in the business.

Show Conflict in Columbus

COLUMBUS, OHIO, Jan. 21—Two shows have been scheduled for Columbus and the Columbus Auto Show, which represents dealers in this city and is an organization of the dealers, is calling attention to the fact that it has no connection with the other show. The Columbus Auto Show Co. has engaged Memorial Hall for Feb. 27 to March 2. Anson D. Bernard Coates is treasurer of the Columbus Auto Show Co.

New Organization for Little Giant

CHICAGO, Jan. 21—After an existence of 9 years as a department of the Chicago Pneumatic Tool Co., the motor truck interests of the company have been taken over by a new organization known as The Little Giant Truck Co. The Little Giant Truck Co. is owned and controlled by the Chicago Pneumatic Tool Co., and the officers are the same: President, W. O. Duntley; secretary, W. B. Seelig; treasurer, L. Beardsley, and sales manager, T. J. Hudson. The headquarters will remain in the Little Giant Building, 1615 Michigan avenue.

Bloomington Dealers Elect Officers

BLOOMINGTON, ILL., Jan. 21—At the annual meeting this week of the Bloomington Automobile Trade Association officers were elected for the ensuing year as follows: President, J. E. Lockwood; vice-president, F. H. Cole; secretary, E. E. Pierson; treasurer, J. E. Clark.

It was voted to increase the charge for work by first class mechanics to 90 cents per hour, and for work by helpers to 70 cents per hour. Previously the charge has been 75 and 50, respectively. Increasing overhead expense forced the increase in charges for repair work.

Action upon the annual winter show was deferred. The dealers staged a successful outdoor show last August, with expenses about one-half that of the winter indoor show, and there is a strong sentiment in favor of another outdoor show in April.

The Bloomington association is now one year old, every motor car dealer being affiliated, and the organization has proven a great success. Due to unity of action in relation to prices allowed on used cars, each member has saved a large sum in this direction alone, while uniform prices for storage and repair charges have also proven money makers. Semi-monthly meetings are held and, following a dinner, the dealers discuss subjects of mutual interest and thresh out many problems and controversies calculated to promote the welfare of the industry.

Kelly-Springfield Milwaukee Branch

MILWAUKEE, Jan. 21—The Kelly-Springfield Tire & Rubber Co., New York, has established a branch house in Milwaukee at 426 Jefferson Street, in charge of J. A. Glassy as manager.

Twin Cities Show to Be a Mammoth Exhibit

Minneapolis and St. Paul Get Together and Will Use Twice the Space Used Last Year

MINNEAPOLIS, Jan. 21—Preparations for the Twin City Automobile and Industrial Exhibition were put in full swing to-day when at the first joint meeting in the history of the full automobile trade associations of the Twin Cities drawings were made by car and truck dealers for space in the show Feb. 2-9. Manager Walter Wilmot held the hat and Vice-President J. A. Graham of Minneapolis was judge. It develops there is to be floor space of between 250,000 and 300,000 sq. ft. as against 117,000 sq. ft. last year. Publicity is being put out in Minnesota, the Dakotas, Wisconsin and Iowa. Arrows on telephone poles will direct motorists from both cities to the Willys-Overland building in the Midway, and carfare is only 5 cents. Flaming banners will advertise the show on fronts of trolley cars. Admission will be 50 cents. Dealers' tickets will cost them 30 cents flat. Attendance expected is 125,000 as against 50,000 last year.

Already space is sold to 125 car and truck dealers and 75 out of 140 tractor dealers and representatives in the Twin Cities. For the industrial exhibit there are 90 subscriptions, which will include all sorts of goods sold in the Twin Cities and Northwest as well as labor-saving devices. A big feature will be the Government food conservation display, with several speakers from the Food Administration at Washington.

To insure arrivals of exhibits from outside two traffic men are named from the two associations and representatives from the traffic divisions of the Minneapolis Civic and Commerce Association and the St. Paul Association.

Vincennes Goes on Cash Basis

VINCENNES, IND., Jan. 21—All the dealers in this town have gone on a cash basis. In order to make their move known they ran a large display ad in the Vincennes newspapers stating that by paying cash customers can avoid raises in prices and that the elimination of book accounts cuts down the dealer's overhead and thereby makes it possible for the dealer to give better service to the customers. The advertisement is signed by:

D. D. Aldrich, Gibson Overland Co., Vollmer Montgomery Auto Sales Co., Meyer Bros., Vincennes Auto Specialty Co., Whitehouse Garage, Republic Motor Truck Sales Co., Johnson Auto Co., Thos. G. Rankin, Willard Storage Battery Station, Auto Supply Co., The Auto Tire Shop, R. R. Robinson, Brico Auto Co., A. L. Maxwell Co., Finch & East, Broadway Garage, Main Street Garage, M. E. Hunter's Motor Wks., Heitz & Hartzburg, and Vincennes Top and Body Wks.

Record Sales Reported by Vancouver Dealers

1400 Cars Sold Since June 1—Business Not Diminished in Winter Season

VANCOUVER, B. C., Jan. 21—The last season has been the most successful in the memory of this city's automobile dealers. Since the beginning of June last no less than fourteen hundred cars have been disposed of in the local territory. Reports from the local licensing department show also that the near approach of winter is having little or no detrimental effect on sales.

While medium-priced cars have held the lead in point of sales, many of the higher-priced cars have also been sold by local distributors. That the Province of British Columbia is still virgin soil so far as the automobile industry is concerned is evidenced by the fact that new companies are being formed and branches of established firms from other cities are stretching their tentacles to include the farthest west province of the Dominion.

One matter that is causing no little concern to dealers locally is the question of deliveries. So far Vancouver dealers have been singularly fortunate in keeping pace in large measure with the demands of their patrons, but it is almost too much to expect that this gratifying state of affairs will continue during 1918. But it is hoped that the manufacturers will be able to secure the shipping facilities that will enable distributors out West to keep a flow of cars moving, even if it is not in sufficient volume to meet the heavy requirements that are sure to arise.

Saskatoon Has No Law Governing Gasoline Supply Tanks

SASKATOON, SASK., Jan. 21—The city engineer's report shows that this city has no regulation of any sort covering gasoline supply tanks. The city of Winnipeg, Man., requires the usual building restrictions, but no bond. Vancouver, B. C., does not require a bond, but the owner must sign a release indemnifying the city against all claims for damages, and pumps at curb line are only allowed on wide or lightly traveled streets. London, Ont., has no regulations as to construction or otherwise and no bond is required.

Edmonton, Alta., requires such tanks to be regulated by the building by-law, but requires no bond. In Ottawa, Ont., the building by-law regulates construction, and the permission of the Board of Control is necessary before installation.

194,740 Motor Vehicles Registered in Texas

AUSTIN, TEXAS, Jan. 21—During the first five and one-half months, up to Jan. 1, 1918, that the State Highway Commission was in existence, there were

registered a total of 194,740 motor vehicles, including automobiles and motor trucks, and 3579 motorcycles. The number of dealers in the State, according to the Highway Commission's record, is 3094. Licenses were issued to 12,696 chauffeurs, of which about 25 per cent are in San Antonio. In the registration of motor vehicles there is no separation of automobiles and motor trucks. Included in the motor trucks are those owned and operated by the United States Army and other departments of the Federal Government, but no registration fee is charged for these. It is difficult to give anything like a reliable estimate of the total number of motor trucks in the State, but there are probably 10,000 or more in operation. Many automobiles and other motor vehicles have escaped the registration law. It is believed that if all were registered the total number would be close to 225,000. According to unofficial reports made by the county clerks of the different counties several months ago there were at that time more than 225,000 automobiles in Texas.

New 3-Wheel Delivery Car on Market

NEW YORK, Jan. 21—A new small three-wheeled delivery car is being placed on the market by the New York Rotary Motor Co. of which the president is Arthur S. Alexander of the J. Alexander Mfg. Co., an old firm in the trade; Harry S. Houpt, Hudson dealer in New York, is another officer; Colonel Theodore Marcceau, a Fifth Avenue photographer, is interested and the fourth member of the company is John L. Miller, Jr.

The company has an office at 1931 Broadway and a factory at 139th Street and Fifth Avenue. Because of the low price, which is \$295, its economical operation and its ability to carry a load of 500 lb., its sponsors believe it will have a large sale. It is said one order for about 18,000 is already in hand and that production will be under way by April 1.

The engine is a rotary type with three cylinders enclosed within the spokes of the driving wheel which is placed at the middle and rear of the three-wheeled chassis. The body is mounted forward on the axle and the driver sits above the motor and behind the body, a form of construction that has been seen before in small package delivery cars.

The motor weighs 34 lb. and, it is stated, will develop 10 hp. and make 50 miles to the gallon. A speed of 25 m.p.h. is obtainable and the car is said to run for 1½ cents a mile. Tires, which are pneumatic and 30 x 3, are said to give 7000 miles. The whole vehicle weighs 300 lb. Cylinders are 2½ x 2½.

Chevrolet Increases Price of 490

NEW YORK, Jan. 22—The Chevrolet Motor Co. is increasing the price of its 490 model, effective March 1. The old and new prices follow:

	New	Old
Touring	\$685	\$635
Roadster	660	625
Chassis	625	585

No change in other models is contemplated.

Stewart Motor Corp. Makes 4 Truck Models

Capacities from ¾ to 2 Tons— Three Large Sizes Have Continental Engine

BUFFALO, Jan. 21—The Stewart Motor Corp. is manufacturing four truck models, the model No. 6, ¾-ton capacity; No. 7, 2-ton capacity; No. 8, 1-ton capacity, and No. 9, of 1½-ton capacity.

The No. 6 model, having a capacity of ¾ ton, supplies the demand for a fast light delivery truck. It is driven by a four-cylinder 3½ x 4½ in. engine having the cylinders cast in block and the gearbox and multiple disk clutch a unit with the engine. An internal gear rear axle having a total ratio of 6 to 1 and mounted on roller bearings is used. The wheelbase is 110 in., and 32 x 4 in. pneumatic tires are used all around.

This truck is regularly equipped with four types of bodies. The steel-covered panelled body styled the Model A is completely enclosed and provides a loading space 7 ft. long, 45 in. wide and 53 in. high. The chassis and body sell for \$875 complete. The Model B body provides the same loading space, but is of the covered express type, having rolled curtain sides. This model complete sells for \$840. The Model C body differs from the Model B in that the loading space is not covered and the driver's compartment is provided with a cab. The price is \$848. The fourth body style, Model D, is fitted with a stake platform body having a driver's cab and storm curtains. The loading space is 7 ft. long by 56 in. wide, and the price complete is \$848. If desired, Motz commercial cushion tires, size 34 x 4½ in., may be fitted to the rear axles at a nominal extra cost, and the chassis alone sells for \$750.

Model No. 7 is the largest, being designed for 2 tons and selling for \$2,195. It is driven by a Continental four-cylinder engine 4½ x 5½ in., and employs multiple disk dry plate clutch, tubular driveshaft and internal gear, rear axle having a ratio of 8.15 to 1.

A Berling high-tension magneto with a fixed spark, Zenith vertical type carbureter and automatic engine-driven governor are used. Wheels of the artillery type fitted with solid pressed on tires 43 x 4 in., the front single and the rear dual, are used. Standard equipment includes driver's seat, cushion, side and rear oil lamps, bumper, horn, tool kit, tool box and front fenders.

The chassis for the Model 8 1-ton truck sells for \$1,295. This truck likewise is driven by a Continental engine having four cylinders 3½ x 5 in., and the same equipment as that of the Model 7. The final gear ratio, however, is 6 to 1.

The 1½-ton truck styled the Model 9 sells for \$1,695, without body. The engine is a Continental four-cylinder 3½ x 5, and in general construction differs but little from Models 7 and 8.

Tractor Looms Large To Western Motor Car Dealers

Implement, Vehicle and Hardware Men Plan Big Drive Selling
and Repairing Farm Tractors—to Have
"Repair Week"

KANSAS CITY, Jan. 21—An exceptionally cheerful view of the motor trade was taken by the representative members of the Western Implement, Vehicle and Hardware Association who attended the annual convention of the association here from Jan. 14 to 19.

Many of the members of the association are automobile dealers and an even greater number handle tractors and another large per cent are going in for motor truck sales. This latter is particularly true of those dealers who are located in the dairy sections represented in Missouri, Kansas, Oklahoma and Texas, and where there is a growing and insistent demand for motor trucks.

It is a notable fact, implement, vehicle and hardware dealers who were interviewed said, that dairying follows the construction of permanent roads. It takes tractors to successfully and efficiently build permanent roads, and to build them at the minimum of cost, so the construction of permanent roads in these states means tractor sales for the dealers and ultimately motor truck sales. It automatically follows that automobile sales are increased with the construction of permanent roads.

Demand for Small Tractors

While only the larger and heavier types of tractors can be utilized in rock and other permanent road construction work, and while business is exceptionally good in this particular line of tractors yet the demand for the smaller or purely agricultural type of tractor is growing.

In the strictly wheat belt of Kansas the demand is still strong for the 30 and 60 hp. tractors, the same type that is being largely utilized in Missouri, Kansas, Oklahoma and Texas in permanent road work. In the corn belt section, or in northeastern Kansas and the north half and the southwestern quarter of Missouri the demand for tractors is confined to the 8-16 and 10-20 types that have so well demonstrated their efficiency on the smaller farms in the past two or three years. The motor cultivator has established itself as an efficient and highly useful farm implement in the cultivating of corn, and trade in this line of tractor activities promises to be good, particularly in view of the shortage of man power on central western farms coupled with an equal shortage of horses to draw farm machinery in the corn and other fields.

More dealers will stock tractors this spring than ever before as they prefer to sell from the demonstration tractor

rather than from catalogs. In addition to this phase of sales they prefer to take the discount given for sales to the dealer rather than to take the commission that goes to the dealer where the sale is made through a traveler representing the manufacturer through a branch or distributing house who works the prospect for the dealer. In this way there is a better profit for the dealer.

Will Stock Tractors

The automobile sales plan has encouraged the implement or hardware dealer to stock tractors. He can readily see the commercial aspects of stocking tractors outright and takes advantage of the profit that accrues to him through purchases from the manufacturer.

Those implement and hardware dealers who are now selling automobiles propose to turn the activities now exerted in motor sales to the sales of tractors and motor trucks in the event that passenger cars come under the ban through the exigencies of war.

Many of the implement, vehicle and hardware dealers who attended the Kansas City convention have large automobile repair shops in connection with their implement businesses. George Wayland, an official of the Western Implement, Vehicle and Hardware Dealers' Association, and who has one of the largest businesses in the central west at Booneville, Mo., has a well-equipped automobile repair plant that he operates in connection with his implement and vehicle business and his wagon and carriage manufacturing plant. Wayland has gone in extensively for tractor sales and said that discontinuance of the sales of passenger motor cars would not affect his business in the least as he expects to have as much tractor and truck repair work as he can care for at the rate tractors and motor trucks are being sold and utilized at Booneville and its vicinity.

Big Repair Boom Coming

People will take better care of the passenger cars, he predicts, when they find, if they do, that new cars are not to be had because of war conditions and the diversion of materials to other lines, among which would be tractors and motor trucks. To maintain their cars now owned it will be necessary, he says, to keep them in the best of repair so as to prolong their usefulness to the maximum.

E. A. Murphy of St. Joseph, Mo., who has had a large experience in the handling of automobiles and motor trucks, said that motor car dealers will naturally

turn to increased motor truck and tractor sales in the event that passenger automobiles come under the ban because of war conditions. He predicted a largely increased business for repairshops and cited the immense amount of shoe repair work that is being done by every cobbler now that shoes have advanced so much in price as to make their longest possible utilization imperative.

Heavy Repair Work

Dealers everywhere are behind the movement to have all tractor and motor truck as well as farm implement users to take an immediate invoice of their repair needs so as to get these repairs made up and in the hands of those who will require them at the very earliest moment, so that the repair department activities of all the big manufacturing concerns in the motor, and the implement and farm machinery business as well, may be released for war activities. Time for all concerned will be saved and the work of planting and tilling expedited by farmers and truck men having all their farm machinery repaired and ready for work as soon as the farming season opens.

Many counties in the central west are rushing to avail themselves of the federal aid for road work that they must utilize soon if they are to have it at all. This means increased tractor sales for dealers in the communities where these permanent roads are to be constructed with federal aid and as already stated the motor truck and the automobile follow in the wake of permanent road construction.

Farmers Are Prosperous

Unprecedented prosperity in the central west, caused by larger crops, in most instances, and in greatly increased prices for all crops produced in 1917, gives the farmers greater buying power for tractors and motor trucks than ever before.

The demand for tractors is accentuated by the lack of man power and also by the fact that the central west, which is the home of the Percheron horse, a heavy French type, has furnished more artillery and siege gun horses to the Government service than any other section of the Union.

Greatly increased acreages of winter wheat have already been achieved. Corn and oat acreage will be increased over 1917 and this means that more work must be done by fewer men and fewer horses than in 1917, and as horses have been depleted by war demands the farmers are going to turn to tractors to produce the crops that the Government is pleading for.

While many of the larger dealers stated that they preferred to stock tractors and pay for them in the regular commercial way, yet the resolutions adopted by the convention stated that it was the opinion of the convention as a whole that the distribution of tractors would be augmented and furthered if dealers were not required to make a deposit on tractor purchases.

The convention also expressed itself, through the resolutions adopted, as being in favor of "Repair Week" and the

executive committee was authorized to designate some week in February as "repair week" when every dealer will urge on his customers to invoice his repair needs and have the dealer put in an order for them immediately.

The purpose of this plan is to prevent any transportation delays and to secure maximum car loadings of repairs to branch and distributing points from where the repairs will be sent out to dealers, as well as to give the factories a chance to get these repair parts out of the way and then turn to military activities.

Col. W. E. Lilly of Ochiltree, Tex., who is an extensive ranchman as well as implement, vehicle and hardware dealer, said during the convention that the tractor must precede the motor truck in that country. Livestock is often hauled to market or to shipping points a distance of 20 to 60 miles. This hauling of livestock is done with 6 horses and a huge wagon with a trailer. It would be impossible to change these wagon drivers off directly to truck driving. The tractor is an absolute essential in the voluminous farming in that section where vast areas are plowed and cultivated.

Must Motorize Texas

The motorization of Texas farm activities must come, Col. Lilly said, through tractor driving which has come to be a principal element in farm work and crop production while motor truck driving is an incident attendant on production through motor cultivation, motor trucks being used as a marketing factor after the prime factor of farm work, that of production, has been accomplished.

Hooking Up Tractors and Cars

KANSAS CITY, Jan. 21—How closely should a tractor show be "hooked up" with an automobile show?

Many Kansas City motor car dealers and distributors seriously considered this question in preparing the plans for the motor car show this year. There was a feeling that the automobile dealer will be called upon within a very few years to distribute tractors, and the question became pregnant as to how soon the passenger car, truck and tractor should be closely associated in the minds of the public and from what angle.

"The time is not ripe for a single show of all three," said one man. "For one thing, the motor car dealer is waiting until the tractor gets on the standardized basis of the passenger car and the truck. Then, too, the passenger car dealers are only now getting into the truck business—and they have to have a little time to readjust themselves to the new and different phases of this type of business."

"I am confident that in a very few years—maybe next year—we will see trucks and tractors shown together, perhaps in the same building where the motor cars were shown, and the week following the passenger car exhibition."

The National Tractor Show will be held in Kansas City at the Union Station Plaza the same week as the motor car show.

West Promises Record Season for Truck Men

Dealers See Increasing Need for Inter-City Truck Deliveries—Plan Road Information Service

KANSAS CITY, Jan. 21—Below-zero weather; the heaviest snows for two years; wind drifting it badly—but business men making trips of 200 miles in passenger cars, and truck companies sending out deliveries, in lots of one to 20.

This, during a week when passenger trains are being taken off and are reported a few to many hours late; when the whole district is disturbed over the transportation problem of the coming year—

And when the snow has practically guaranteed the winter wheat crop of the district!

No wonder car dealers, truck dealers, everybody connected with the industry, foresee a vast expansion of the truck business this year.

The week produced this highly contrasting situation: A truck distributor who is right at the top in volume, had, a few days before the storm came, intimated that mid-winter, with storms drifting snow, was a very poor time to get people interested in truck transportation, and that unfortunately nothing much could be done until fairer weather came. Another dealer explained that with proper organization of communities the roads could be kept open even in the worst weather, to guarantee the scheduled freight traffic by trucks. Both dealers happened to be among those whose trucks went out in the worst weather.

"Our truck business has tripled the past year," said one distributor. "We expect it to make great strides this year. There are dozens of localities within a few hundred miles of Kansas City that now actually need truck service between towns; others are going to need it, because of curtailment or suspension of railroad service."

This distributor was confident that in many communities local companies would be formed to establish inter-city truck lines.

Another dealer, whose truck business had doubled last year, was equally confident that individuals would see the commercial possibilities in truck lines and establish them.

The services of the touring bureau of the Kansas City Automobile Club have been in demand for information, by dealers' delivery trucks and persons making business trips, in this weather. The roads—as soon as local traffic has broken the drifts—are in some directions better in extreme cold than after the thaw, and the dealers are advised as to where these routes are, if they are not already acquainted with them.

This bureau of the automobile club is expected to be useful also as spring advances, and the dealers plan their

sales campaigns, since the likely prospects for heavier trucks will be along the routes of paved roads, and even the lighter trucks will be more easily sold where roads are kept in fair condition.

Labor Plentiful in Kansas

KANSAS CITY, Jan. 21—There is an adequate supply of labor, a surplus of common labor, and no prospect of a shortage for farm work this spring and summer.

The general labor problem is easy. Careful organization now, and full co-operation through the year, will fill every useful job with a reasonably competent worker, and get the country's work done.

This is the unanimous opinion of a dozen federal and state employment service men, who held their interstate and federal conference in Kansas City recently. The meeting was of the grain states west of the Mississippi, whose labor bureau officials have been co-operating with each other and the Federal Government for several years.

Several of the commissioners saw a new phase of the labor problem developing in the increased number of tractors and trucks on farms, and in the growth of industrial enterprises in their states. In some states a real deficiency in horses is making necessary a great increase in tractors, with the resulting necessity for good local facilities for service thereon, that the tractors may be maintained in active use as consistently as horses with whose care the farmers themselves are familiar.

The commissioners expressed the hope that garagemen would as early as possible this spring get in touch with every farmer in his community, learn his equipment, do his best to get the job of putting it in condition, and arrange so that the most expeditious service in emergencies in working season might be handled by him.

The commissioners hope to get the fullest use of all labor. One made the point that only through the fullest co-operation from garagemen could the labor employed in connection with tractor operation of farms be used to the most economical advantage, since this labor should not be held idle, or employed on non-essential tasks, while undue delay was incurred in tractor adjustments.

The commissioners did not believe it would be necessary this year for any garageman to leave his business to help out a farmer in the field.

Schooler Heads Des Moines Trade

DES MOINES, Jan. 21—The Des Moines Automobile Dealers' Association held its annual meeting last week and elected the following officers: President, Dean Schooler; vice-president, W. W. Sears; secretary, C. G. Van Vliet. To fill vacancies on the board of directors C. W. Payne, C. G. Van Vliet and C. L. Herring were chosen. The motor car men are planning a big co-operative advertising campaign in all parts of Iowa on the Des Moines show, which is to be held late in February.

Beach Heads Jobber Association

Report Progress in Assisting Organization of Local Associations—
Next Meeting at Hot Springs

NEW YORK, Jan. 17—S. F. Beach of the Motor Car Supply Co., Chicago, was to-day elected president of the National Association of Automobile Accessory Jobbers to succeed Charles E. Faeth of Kansas City. Beach is one of the founders of the organization and has been prominent in its activities since it began. The vice-president is P. H. Lyon, Chancellor & Lyon Co., San Francisco. The chairman of the Board of Directors is R. R. Englehart of the Siego Co., Davenport, Iowa. The vice-chairman of the Board is William Sparks, Sparks-Withington Co., Jackson, Mich.

Directors for one year were chosen as follows: W. W. Low, Electric Appliance Co., Chicago; G. N. Schafer, Pruden Hardware Co., New York; F. B. Caswell, Champion Spark Plug Co., Toledo; C. E. Jackson, Jackson Motor Supply Co., Pittsburgh; G. M. McWilliams, Hyslop Bros., Toronto; E. C. Graham, National Electric Supply Co., Washington. Directors for two years: W. D. Alexander, Alexander-Feewald Co., Atlanta, Ga.; C. F. Wright, Ballou & Wright, Portland, Ore.; P. H. Lyon, Chancellor & Lyon Co., San Francisco; Wm. K. Norris, McQuay-Norris Mfg. Co., St. Louis; S. F. Beach, R. R. Englehart. New directors: S. F. Proctor, Minneapolis Iron Store Co., Minneapolis; S. T. McCullom, Auto Equipment Co., Denver; Frank T. Chase, Frank Mossberg Co., Attleboro, Mass.; W. T. Walker, Walker Mfg. Co., Racine, Wis.; L. P. Halladay, L. P. Halladay Co., Streator, Ill.; F. A. Ferris, Ferris-Dunlap Auto Supply Co., Dallas.

William Sparks of the Sparks-Withington Co., Jackson; Charles E. Faeth of the Motor & Machinists' Supply Co., Kansas City, and S. F. Beach of the Motor Car Supply Co., Chicago, were appointed a committee on Federal Relations. Practically all of the other general committees stand as before. Some changes are to be made in the state vice-presidents who have charge of organization work, because some of the appointees have not been active, and little in trade organization has been done in their sections. Some of the state vice-presidents turned in gratifying reports.

SAN FRANCISCO HAS TRADE ASSN.

Robert Weinstock, San Francisco, reported that California has the California Automobile Trade Assn. with 2300 members made up of 30 local associations. Each one of these local organizations is divided into what is called crafts. These crafts are dealers, garagemen, painters, body builders, battery men and repairmen, but the collection of crafts in each city is affiliated into a large city association.

In San Francisco it is the San Francisco Automobile Trade Assn., of which

Robert W. Martland is secretary, and to him is given a great deal of the credit for having built the organization to its present status. The jobbers have assisted a great deal, however.

PRICE CUTTING ELIMINATED

Price cutting, Mr. Weinstock said, had been largely eliminated through educational methods; shop practices had been standardized; modern accounting methods had been introduced; a credit bureau has been organized and put into operation; dealers have been shown how to stock goods properly and display them, and the result has been a bigger and better business for everyone concerned, with more harmonious relations throughout the trade.

Colorado reported an association formed in October, 1917, which has engaged a salaried secretary and is going forward with considerable prospective success.

Florida is about to organize.

O. R. McDonald of the Gibson Co., reported for Indiana and said that by the time of the next annual convention there will be a report from that state or he would know why. Little has been done in Maryland beyond an organization made up mostly of car dealers. In Michigan what little there was of a state association some time ago has died and about all there is left are locals in Saginaw and Grand Rapids, which, however, are quite strong. Battle Creek also has an association and the jobbers in Michigan are looking to better success in the organization in the immediate future.

In New York state the jobbers have been investigating organization possibilities, the immediate reason being the discussion of the trade acceptance.

In Ohio the jobbers have placed \$15,000 and are actively getting behind a state association. A meeting has been called for February 6 in Columbus, at which time it is expected that there will be a large attendance.

Texas has made some progress but it has not a strong state organization.

In St. Louis all trades have combined for a big mass meeting February 19 at noon, during the St. Louis automobile show, at which time special speakers are to be present and the meeting is to be made the beginning of an active propaganda for the big state trade organization. The jobbers in St. Louis are agitating the matter and expect to have the co-operation of the trade in Kansas City at the opposite side of the state.

The next meeting, as told in Motor World last week, will be at Hot Springs, Va., June 5-12.

E. A. Cassidy, New York, moved that the members of the organization cease to say "pleasure car" and refer to vehicles

as "commercial" or "passenger" cars. The resolution passed unanimously, with applause.

The association has decided not to continue the distribution of its jobbers' list.

The question of dealer betterments was one of the big subjects throughout the convention and valuable advice to the jobbers was given by George Fritz, field secretary of the association. He advised them to get out into the field and work among dealers. He said:

"When you all go back home do not permit your good intentions to be moss-ridden but strain all efforts to put into effect state dealers' associations and immediately start a personal campaign to educate and keep in line the dealers so that they may be able to do a profitable accessory business.

"For this purpose I would suggest the employment of a practical man who will call upon the dealer periodically and who will demonstrate to the dealers the best way to do efficient work. Being that this man represents the dealers' association, he is neutral and, therefore, the element of selfish motive is eliminated. In that way you will instill into the dealer the initiative, which is sorely lacking with many of them, and you will be able to keep the accessory business where it rightfully belongs.

"Sending of literature and bulletins is mighty helpful but I have my doubts that it would have the effect so necessary. Gentlemen, this is a serious problem; indeed, too serious to be overlooked for a moment. I know, because I have made a close study of this question during the past year in my travels and the time for action is NOW.

Maxwell Drive-Away Carries Parts

DETROIT, Jan. 15—The Maxwell Motor Co. starts 10 trucks overland for a Pittsburgh dealer to-day loaded with the largest supply of parts ever shipped to one dealer. The Maxwell company plans to continue drive-aways at the rate of 100 cars a day from now on.

Oldsmobile Costs \$1,550 Without Steel Wheels

NEW YORK, Jan. 19—The price of the special Oldsmobile exhibited at the New York show and finished in azure blue with special disk steel wheels was inadvertently given as \$1,550. This is the price without the special wheels, which are extra.

Scrap Metal Prices

NEW YORK, Jan. 18—Following are prices paid by New York dealers for scrap metals during the past week. They are from Iron Age:

	Cents Per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy	17.00 to 17.25
Brass, light	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow rod brass turnings.....	13.50 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy.....	6.25
Lead, tea	5.00
Zinc	6.00

Two Trains Weekly to Carry Cars to Boston

That's What Dealers Propose to Work for—Consider Postponing Show 3 Weeks

BOSTON, Jan. 19—The possibility of putting the Boston motor show back to the last week in March instead of the first, and a plan to have a committee of the Boston Automobile Dealers' Association handle two trains weekly from the motor centers carrying cars and trucks were discussed at a meeting of the board of directors of the organization yesterday.

Under the present Monday holiday ruling this would mean closing the show March 4, and there was a possibility of having to close early in the evening each night, which caused some uneasiness among members.

After a full discussion of the matter it was voted that unless something extraordinary happened the present dates would be adhered to, but provision was made for a change if it seemed advisable. A number of the members would like to see the show go back a few weeks, as it would then be better weather and the business conditions would be easier. However, as all the contracts for space are signed for March 2, it would mean a lot of extra work making plans for a change.

The other matter was outlined by President MacAlman. He stated that he had been informed that there was a possibility of the Government shutting down on all shipments of motor cars and trucks from factories to dealers. In addition to that, there was talk of a transportation chief being placed in the motor centers to see that every motor vehicle leaving a factory carried something along in the way of parts, tires, etc. In other words, nothing would be allowed to move unloaded. As the Government talked of taking over the express companies, that avenue would be shut off.

Therefore he offered for discussion the suggestion that the organization consider a plan whereby it would appoint a committee to work with the transportation committee of the Boston Chamber of Commerce and try to have two trains weekly brought to Boston carrying motor cars and trucks. The committee would pledge the Government to unload the vehicles on arrival, so the freight cars would be available for return shipment immediately.

It was pointed out that this would be a means of aiding the Government. If the trains could not be brought to Boston the committee would be satisfied to have them stop at Albany, and men would be there to take care of the unloading. Under the plan the dealers wanting cars would have to deposit with the motor committee the money to release the cars on arrival. No attempt

would be made to play favorites, and the requests for space in the trains would be granted according to the receipt of an application. The dealers would be given such space as would allow the greatest number to get some cars regularly instead of any one company to get a large number in one shipment.

As Albany is like the neck of the bottle leading to New England, it was felt that perhaps the Government would be willing to go as far as that city with trains. By getting at least two a week through it would be possible to take care of a large number of dealers all through the territory.

This matter was fully discussed and a committee was appointed to give it careful consideration. The committee will confer with dealers and organizations in other parts of the territory regarding the feasibility of entering into some agreement to take space on the trains for regular shipments.

President MacAlman and John H. Johnson will go to Chicago to attend the annual meeting of the National Automobile Dealers' Association Feb. 1 and 2, and while there they will outline the scope of their plan to the members from other sections to see if some general plan can be worked out to cover the entire country and thereby benefit the industry instead of having it in a chaotic condition.

More M. A. M. A. Members Get Chicago Space

NEW YORK, Jan. 19—The Motor and Accessory Manufacturers' Assn. has added the following concerns to the list of exhibitors at the Chicago Automobile Show:

Air Device Co., Chicago.
F. A. Ames Co., Owensboro, Ky.
Anderson Forge & Machine Co., Detroit.
Auto Pedal Pump Sales Corp., 456 Fourth Avenue, New York.
Bay State Pump Co. Boston.
Carburetor Mantle Co., Inc., 1476 Broadway, New York.
Copeman Laboratories, Inc., Flint, Mich.
G. L. W. Spring Oiler Co., San Diego, Cal.
Gibraltar Jack Co., 1902 Broadway, New York
Guarantee Liquid Measure Co., Pittsburgh, Pa.
McCord Mfg. Co., Detroit.
Menominee Electric Products Co., 1756 Broadway, New York.
Miller Transmission Co., 90 West Street, New York.
New Era Spring & Specialty Co., Grand Rapids, Mich.
Wm. E. Pratt Mfg. Co., Chicago.
Rajah Auto Supply Co., Bloomfield, N. J.
Rand Mfg. Co., Haverhill, Mass.
Rex Mfg. Co., Connersville, Ind.
Taft-Pierce Mfg. Co., Woonsocket, R. I.
C. R. Wilson Body Co., Detroit.
Wire Wheel Corp. of America, Buffalo, N. Y.
Woodworth Mfg. Co., Niagara Falls, N. Y.

Kansas City Show to Mix Cars and Trucks

Exhibits Will Be Utilitarian Rather Than Merely Beautiful—To Show "Transportation"

KANSAS CITY, Jan. 21—"Precedent be hanged—we're winning the war!"

This is the spirit of the motor car dealers of Kansas City territory and of the Kansas City Motor Car Dealers' Association in their plans for the annual show Feb. 11 to 16.

Red tape is being cut; customers are being forgotten; the public good is being considered.

The demise of precedent will be most emphatically demonstrated in the general appearance of the show. Beauty is all right for the parlor—but can be disregarded when the boys in the trenches need food.

So, instead of a handsome and symmetrical display of passenger cars in that department of the show visitors may find a huge truck standing in the space next to a \$6,000 limousine—and possibly a small truck in the same space with a touring car, or roadster.

Violates Previous Practice

This practice is a sharp violation of the previous rules of the association, which prohibited a manufacturer who supplied a light delivery car and a passenger car to exhibit them both in the same space—rather, no rule has been violated, but the rule has been changed.

"Everyone is interested in the transportation problem right now," said E. E. Peake, secretary of the association, and manager of the show. "The women who visit the show are deeply interested in trucks, for they are hearing and wondering what their grocers are doing with reference to deliveries—and what they can do."

The juxtaposition of the trucks and the passenger cars will give a stronger tone of practicality to the entire show—and the men visitors can see more clearly the real value of the passenger cars in their business, and gain a more correct notion of the real need of the passenger car in their daily lives.

Aside from the closer harmony with the spirit of the times this admission of trucks is made necessary by the fact that many of the Kansas City dealers and distributors are actually selling far more trucks than ever before, and some who a year ago would not consider trucks for a moment are taking on those lines. The big truck demand seems to be coming from the country; the dealers through the territory are increasing their sales of trucks—and passenger car dealers are more and more seeking to fit their organizations for truck sales. The country wants trucks—and the motor car dealers are evidently going to satisfy them.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Nelson Hall has been appointed production engineer of the Fisher Electrical Works, Detroit, manufacturer of electrical starters for Fords.

Lucius French, advertising manager of the National Motor Car & Vehicle Corp., Indianapolis, has resigned to accept a commission as first lieutenant in the United States ordnance department. He will be attached to the motor equipment department of the ordnance department. Almas E. Vinton, assistant sales manager, will succeed Lieut. French as advertising manager.

G. L. Bigsby, engineer for the Anderson Electric Co., has been loaned by his company to the Automobile Industries Committee and will serve on the corps of engineers now employed by that committee for investigation of automobile and parts factories.

H. F. Worley has been appointed manager of the tractor division of the General Motors Truck Co., Kansas City. He was formerly manager of the Kansas City branch of the Nelson Tractor Co.

R. L. Doyle has left the factory of the General Motors Truck Co. to join the Kansas City office of the company.

A. C. Harrington, formerly general carriage sales manager of the Packard Motor Car Co. of New York, has been promoted to the position of supervisor of carriage, truck, used car and used truck sales, and head of the accessories and specifications departments.

Frank J. Foley, formerly manager of the mining department of the Westinghouse & Electric Mfg. Co., has become associated with the Edison Storage Battery Co., Orange, N. J. He will manage the mining and traction department, with headquarters in Orange.

Franklin T. Chapman, formerly body engineer and assistant to the manager of the Olympian Motors Co., has been appointed assistant general sales manager of E. F. Houghton & Co., Pontiac.

D. H. Wetzel, for the last 5 years sales manager of the Mott Wheel Works, Jackson, Mich., has resigned.

Charles A. Swan, formerly superintendent of the Becker Steel Co. of America, has joined the sales organization of the Hess Steel Corp., Baltimore. He will represent the Hess company in Cleveland and Detroit territory.

W. H. Knowles, who was formerly chief engineer of the Saxon Motor Car Co., has been appointed superintendent of Hale & Kilburn Co., Philadelphia.

C. Floyd Greene has been appointed wholesale director of the E. A. Myers Co., Pittsburgh. He was formerly district manager of the Chalmers Motor Co.

W. J. Drumpelman has been appointed assistant sales manager of the Hudson Motor Car Co., Detroit. He was formerly assistant general manager of the Elgin Motor Car Corp., and has been in the sales department of the Lozier, Oldsmobile and Chalmers companies.

C. W. Owston, purchasing agent of the McCord Mfg. Co., Detroit, has resigned and left for Government work in Washington.

Harry Miller, formerly service manager of The Elmer Automobile Co., Hartford, Conn., has joined The Whaley Motor Co., Inc., at

No. 449 Wethersfield avenue in a similar capacity.

Robert T. Walsh has been placed in charge of advertising and sales for the Electric Intake Heater Co., Jackson, Mich. He was formerly advertising manager of the Briscoe Motor Co., and prior to that of the Maxwell Motor Co., Inc.

C. S. Thompson, Chicago, has been appointed manager of foreign sales of the Four Wheel Drive Automobile Co., Clintonville, Wis., to fill the vacancy caused by the resignation of J. M. Homs, who has become associated with his brother in the exporting business in New York City.

Y. F. Stewart, Cleveland, has been made Director of Sales of The Economy Motor Co., Tiffin, O.

E. G. Hosler, formerly connected with the Willys-Overland Co., Toledo, as district manager of the midwestern division, has purchased the Overland-Houston Co., Houston, Texas, and on January 1 assumed the duties of president and general manager.

N. F. Sutton, who has been manager of the General Motors Truck Co., St. Louis, for five years, has resigned to enter business for himself at Portland, Ore. Sutton and W. K. Chilcott, former salesmanager for the General Motors Truck Co., Pontiac, have formed a partnership to sell Nash cars and trucks in Oregon, Washington, Idaho, Alaska and part of Montana.

Frank J. Nudelman, St. Louis, has been appointed branch manager for the Maremont Co. in that city.

Waller Edwards, for two years secretary of the Automobile Club of St. Louis, resigned to become war tax collector. Paul J. Fisher, who resigned as secretary of the club two years ago because of his health, is filling the position.

H. S. Gardner, formerly district manager of the Chicago branch of the Willard Storage Battery Co., has resigned to manage the Mid-West Storage Battery Co. at Kansas City, which will operate a Willard service station at that point.

Chas. E. Frizell, formerly district manager of the Willard Storage Battery Co.'s branch at Cleveland, will succeed H. S. Gardner as district manager at Chicago.

L. A. Kuhn, formerly assistant district manager at New York branch of the Willard Storage Battery Co., will succeed Chas. E. Frizell as district manager at Cleveland.

Another Motor World Man in Government Work

NEW YORK, Jan. 21—S. Thornton Williams, who has been associated with the editorial staff of Motor World for nearly 2 years, has resigned to take up government work. He has been appointed Naval Aeronautical Mechanical Engineer and will be stationed at the Navy Yard, Philadelphia.

Toback Made Redden General Manager

NEW YORK, Jan. 21—Samuel S. Toback, formerly one of the largest Hudson distributors in the United States and later distributor of the King and Daniels in New York, has been elected general manager of the Redden Motor Truck Co., Chicago. Toback has also been elected a member of the board of directors. George Hipple, formerly merchandising counsel of the Mitchell Motors Co., Racine, has been elected assistant general manager of the Redden company. A new Redden attachment with a number of improvements is to be brought out.

Several New Dealers Signed at N. Y. Show

Paige and Liberty Both Close Distributors—Live Prospects Prove Numerous

DETROIT, Jan. 21—Manufacturers are slowly filtering back from the New York show, and in practically every instance are filled with optimism for the coming year. It is the consensus of opinion that though the show was not marked by the large crowds heretofore common, those present were there for business reasons, and the total amount of actual business done was greater than in years past.

The statements of the Paige Motor Co. and the Liberty Motor Co. are typical. Paige states that the number of cars sold was much greater than last year, and several good dealers were secured. The Liberty Motor Co. closed with several large distributors, among which are Diuguid Brothers, Brooklyn, and The Georgia Automobile & Supply Co., Savannah, Ga., for the entire state.

It was the experience of these companies that the amount of literature handed out was nearer 100 per cent efficient than ever before, and the number of live prospects—quite different from the amount of business done—was greater than ever before.

Driveaways are being continued, for they offer about the only means whereby cars can be delivered. The Maxwell Motor Co. is to-day sending 10 trucks overland to Pittsburgh, and these trucks are carrying the largest shipment of parts ever sent to one of their agencies at one time. This is in line with their usual practice of making the trucks do useful work in transit, and it is understood that the plans of the company schedule a daily driveaway of 100 cars and trucks from now on. The Liberty Motor Co. likewise sent 5 cars overland to F. E. Stuyvesant, Cleveland, and another allotment recently went to Florida.

Detroit Branch for Fletcher

DETROIT, Jan. 16—The L. V. Fletcher & Co., New York, manufacturers of carbureters, has opened a branch office at 790 Woodward Avenue in charge of George K. Parsons. Frank M. Eldridge, formerly of the Wallace C. Hood Service Bureau, is advertising and publicity manager.

Cooper Union Adds Automobile Engineering Course

NEW YORK, Jan. 2—A motor vehicle engineering course has been added to the other night classes at Cooper Union Institute. It will include class room work, and there will be an extensive laboratory course covering testing materials and engine testing. The course is free and will be conducted by Ethelbert Fafavry.

More Men You Will Meet at Chicago Show

Accessories

American Bronze Corp.—Sherman—*J. W. Watson, Pres.; *C. C. Clark, *H. E. Smith; Le Salle—*E. G. Anderson, Sales Mgr.; *Garrison Ball.

Au-To Compressor Co.—La Salle—*J. W. Lawhead, Pres.; Sherman—C. L. Hixson, A. S. Clucker, A. J. Ludy; 3215 Potomac Ave., R. G. Stough.

Brewer-Titchener Corp.—La Salle—*M. C. Wood, *L. B. Anger, Otto Heinrichsdorf, L. D. Church.

Buda Co.—Headquarters, Harvey, Ill.—*Lon R. Smith, Sales Mgr.; *William J. Walsh, Asst. Sales Mgr.; *P. J. Dasey, Asst. Sales Engr.; George Koons, Sales and Service Engr.

Continental Motors Corp.—Blackstone—*J. G. Painter, Sales Mgr.; *C. D. McKim, W. E. Fellows, B. F. Tobin, R. W. Judson, G. W. Yeoman.

Coe-Stapley Mfg. Corp.—*A. Peteler.

Cassidy Co., E. A.—Blackstone—*E. A. Cassidy, *Gregory Flynn, *R. G. Ames, C. F. Conn, J. K. Gilchrist, A. L. Martin, H. S. Lyman, M. F. Collins.

Clark Equipment Co.—La Salle—*E. B. Ross, Vice-Pres.; *J. P. Ware.

Curtis Pneumatic Machinery Co.—La Salle—*L. C. Blake, *W. C. Hecker, *J. D. Lodwick.

Dyneto Electric Corp.—La Salle—*C. W. Butterfield, *G. S. Montfort.

Eclipse Machine Co.—Congress—*G. L. Bush, Sales Mgr.; E. J. Dunn, Pres.; J. C. Ferguson, Gen. Mgr.; W. L. McGrath, Chief Engr.; V. Bendix, Sales Engr.

Globe Mfg. Co.—New Southern—*H. M. Dunlap, *J. H. Brandon, T. W. Childs, F. W. Wilbur, Mabel R. Tyrrell.

General Tire & Rubber Co.—Headquarters, 1120 Michigan Ave.—W. O'Neill, J. E. McGinniss, *H. E. Taylor, *D. H. Work, *Theodore Brown, H. G. Ault, Harry Becker.

Grossman Mfg. Corp., Emil—Congress, Room 1136—Emil Grossman, J. M. Lowe, H. G. Wedler, Rudolph Cony.

Halladay Co., L. P.—Illinois Athletic Club—*L. P. Halladay, *W. J. Heineke.

Hartford, Inc., Edward V.—La Salle—*E. R. Waterman, Sales Mgr.; *E. L. Leinbach, *Henry Roemer, J. W. Davis, Adv. Mgr.

Hassler, Inc., Robert H.—La Salle—*E. D. Fouts, Homer A. Woods.

Kent Mfg. Wks., Atwater—Sherman—*H. C. Carlisle, H. E. Rice, Sales Mgr.; T. W. Kullicke, M. Freas.

Norma Co. of America—La Salle—Messrs. Nones, Nelson, Bott & Bell.

Oakes Co., The—Congress—*W. H. Oakes, *F. E. Glass, *T. F. Dodd.

Parry Mfg. Co.—Congress Annex—*R. P. Henderson, Sales Mgr.; E. J. Hermann, Asst. Sales Mgr.

Philadelphia Storage Battery Co.—Sherman—*W. S. Cranmer, Edward Davis, Pres.; James M. Skinner, V.-Pres.; R. L. Heberling, L. S. Douglass, H. M. Baumgartner.

Phillips-Brinton Co.—Blackstone—*Jesse D. Phillips, *C. A. Mattison, Edwin S. Phillips, Pres.; William C. Brinton, Jr., V.-Pres.

Prismolite Co.—Lexington—*R. W. Wadsworth, *F. S. Stimson, *C. J. Peterson, *J. G. Earl, R. E. Ackland.

Rex Mfg. Co.—Congress—*E. W. Ryan, *N. A. Crawford, *H. M. Bock; Great Northern—*C. C. Hull, *M. R. Hull.

Remy Electric Co.—Blackstone—*O. F. Conklin, Chief Engr.; *J. B. Replogle, Asst. Chief Engr.; *C. Ringwald, Exp. Engr.; *J. G. Wood, Sales Mgr.; *F. L. Atwood, Fac. Mgr.; G. V. McMahan, H. W. Griffith, George Bell.

Sparks-Withington Co.—Morrison and Annex—*William Sparks, *F. A. Rodgers, *C. L. Falkenberg, Herman Gumper, R. A. O'Reilly.

Standard Parts Co.—Blackstone—Christian Girl, Pres.; Dan C. Swander, Sales Director; W. E. Perrine, Production Director; W. C. Keys, Engineering Director; Managers of Sales, W. P. Culver, D. K. Moore, B. A. Quayle and B. R. Winborn; James A. Braden, Adv. Mgr.; C. S. Pelton, H. A. Goddard, R. T. Armstrong, H. E. Figgie, R. G. Bradley, C. E. Clemens, Art A. Loeffler, W. Stutson, J. W. Burgess, O. L. Miller, W. Paxton, E. J. Jones, Harry Roettinger, H. E. Jandus, B. H. Blair, H. R. Silver, J. C. Manternach, J. W. Holt, E. Stuck.

Van Sicklen Co.—Congress—*F. B. Wood, *L. O. Anderson, Charles F. Van Sicklen, N. H. Van Sicklen.

Veeder Mfg. Co.—Auditorium—*E. B. Smith, W. C. Waldo.

Waltham Watch Co.—Sherman—*Frank T. Day, Merchandis. Mgr.; *F. E. Dearborn, Service Engr.; E. J. Steele, W. F. McCombs, R. F. Wigmore.

Willard Storage Battery Co.—Blackstone—R. J. Nightingale, Sales Engr.; A. C. Hyser, Gen. Ser. Mgr.; R. C. Norberg, Gen. Sales Mgr.; W. W. Wyneken, Asst. Gen. Sales Mgr.; S. S. Jenkins, Detroit Dist. Mgr.; C. S. Whitney, Sales Engr.

Zenith Carburetor Co.—Headquarters, 1507 Michigan Ave.

Cars

Dorris Motor Car Co.—Sherman—*R. A. Gray, Wholesale Sales Mgr.; G. P. Dorris, J. C. Griffith, M. R. Leathers, J. T. Rumble, George L. Jeck, R. L. Carr, V. C. Kloepper, E. C. Sanner.

Comet Automobile Co.—Morrison—*G. Vernon Beck, V.-Pres.; George W. Jagers, Pres.; F. T. Kelsacker, H. H. Borchers, John A. Schroeder.

Dort Motor Car Co.—Congress—J. D. Dort, Pres.; D. M. Averill, V.-Pres. & Gen. Mgr.; J. D. Mansfield, Gen. Sales Mgr.; J. R. Van Cleve, Service Mgr.; H. S. Daniels, Adv. Mgr.; E. Planche, Chief Engr.; F. A. Petrie, L. M. Taylor, C. F. Batchelder, C. F. Applegate, O. F. Gillen, H. S. Dusette.

Lexington Motor Co.—Congress and Annex—*F. B. Ansted, *Emery Huston, *R. J. Irvin, *C. P. Welles, *P. W. Widsom, F. I. Barrows, J. C. Moore, G. C. Patrick, E. B. Brown, L. A. Hanson, W. F. Thoms.

Malbohm Motors Co.—Headquarters, 2637 S. Michigan Ave.—*T. W. Cushing, *Lloyd McGinniss, *C. V. L. Marshall, H. C. Malbohm, W. C. Malbohm, John H. Scott.

Moore Motor Vehicle Co.—Morrison—*D. M. Ryan, Gen. Sales Mgr.; *J. B. Long, Pub. Mgr.; Louis Disbrow, Pur. Agt.; George L. Moore, Pres.; A. C. Leonard, V.-Pres.; E. Gallagher, Secy.

Ohio Electric Car Co.—Blackstone—*A. D. Moore, H. H. Brand, G. W. Shaw.

Stephens Motor Branch—Moline Plow Co.—Auditorium—*C. Roy Clough, Sales Mgr.;

*W. C. Stewart, *A. J. Pray, *G. Fred Hunter, M. A. Steele, H. J. Leonard, O. C. Williams.

Studebaker Corp.—Blackstone—*R. T. Hodgkins, Genl Sales Mgr.; *Geo. L. Willman, Asst. Genl Sales Mgr.

Velle Motors Corp.—Sherman—*F. E. Bradfield, *Charles R. Gardner, *T. L. Martin, E. R. Gardner, P. D. Crouch, A. E. Humphrey, H. T. Wheelock.

Detroit's 17th Show Surpasses All Others

**Opened Jan. 19 in Overland Bldg.
100 Exhibitors Listed—
230 Cars on Floor**

DETROIT, Jan. 19.—Detroit's seventeenth annual automobile show, and in many respects the best ever held here, opened to-day in the new Overland building. Three floors have been utilized to display a very representative line of automobiles, trucks and accessories. There are 100 exhibitors, fifty of whom are showing passenger cars, twenty are showing trucks, and the remaining thirty accessories. There are 230 cars on the floor. The show is held under the direction of the Detroit Automobile Dealers' Association and the exhibit space totals 75,000 sq. ft.

The building in which the show is being held is new, having been completed during the latter half of 1917. Last year it was necessary to buy Billy Sunday's large wooden tabernacle in order to house the show, with the result that the interior was more like a circus tent than an automobile showroom. Furthermore, it was broken up by posts and was troubled by occasional leaks in the roof, which at times threatened to spoil the oriental decorations. This year, however, by using the big Overland building it has been possible to secure an additional 1000 ft. of floor space in a warm, cold-proof and rain-tight building.

The three floors have been decorated for the occasion with a Roman garden effect, the background of antique walls being surrounded by flowers and flanked by huge vases. Above the walls is a cloud and sky effect giving the impression of a large, outdoor space. The lighting arrangement is indirect by means of clusters of whitened globes. The passenger cars are displayed on the two upper floors, with the accessories and attachments together with the commercial vehicles are on the first floor. It is the plan of the show management to conduct all the visitors to the third floor when they enter the building, so that the exhibits may be seen there first, after which there are broad stairways leading down to the other floors.

Chas. E. Baker, president of the D. A. D. A., looks on the show as a turning point in automobile sales in this territory. Traveling conditions have been bad this winter throughout the middle-west and the cold has been exceptionally severe, with the result that many dealers in this territory have not attended the New York show and probably will not

go to Chicago. There will, however, be a very full representation of dealers from this territory at the Detroit show. Factory representatives are recognizing this and it is expected that a high water mark in sales transactions will be reached this year. The truck business is expected to show up particularly well and there is a very representative line displayed.

H. H. Shuart, who managed the show last year and who was assistant manager to Walter Wilmot, former manager in years previous, has enlisted the co-operation of the local manufacturers to a larger degree than ever before, and this is one of the vital factors in making this exhibition the most complete ever held in Detroit. The officers of the local organization have also been very energetic along these same lines. Chas. E. Baker, who handles the Jordan, is president.

\$4,000,000 Order for Jackson Munitions

JACKSON, MICH., Jan. 17—The Jackson Munitions Corp. received \$4,000,000 order from the Government. Another of the same amount or larger is expected upon its completion. The plants of the Jackson Automobile Co. and the Mutual Motors Co. will be utilized. It is expected that production will be started within 30 days, or 60 days at the latest.

Fire Destroys 500 Vehicles

INDIANAPOLIS, Jan. 18—About 500 new passenger cars and motor trucks were destroyed last Sunday night in a fire that burned the Industrial Building in this city, causing a total loss of more than \$2,000,000. The loss to Indianapolis automobile manufacturers and sales companies is estimated at \$500,000, the loss being well covered by insurance. The Empire Automobile Co. was the heaviest loser, about 400 cars, completed and awaiting shipment in storage, being destroyed. There were five models ready for the spring trade, and the loss to the company will amount to about \$350,000, according to C. B. Sommers, secretary. The property was insured heavily. About thirty Chalmers cars, the property of the Conduitt Automobile Co., were burned, causing a loss of about \$50,000, which was covered by insurance. Thirty-two Republic trucks also were destroyed in the fire, these being the property of the Republic Truck Sales Co. The loss was \$30,000, covered by insurance. J. S. McFarland, secretary of the Cole Sales Co. of Indiana, said that twenty-five Maxwell cars and ten trucks were destroyed that the company had in storage. The loss, which was covered by insurance, amounted to about \$25,000.

Receivers for Bijur

NEW YORK, Jan. 19—The Bijur Motor Lighting Co., Hoboken, has been placed in the hands of receivers. It is understood that the action has come as a result of a lack of ready cash with which to carry on certain Government work. Liabilities are placed at \$1,250,000 and assets at more than \$2,000,000. E. Bright Wilson, Joseph Bijur and Louis V. Hubbard are receivers.

The Week in Washington

WASHINGTON, D. C., Jan. 21—It is reported that all of the factories engaged in the manufacture of Liberty trucks have been granted exemption from the fuel order, but this has not yet been definitely confirmed by the Fuel Administration. The following concerns have been granted exemption by public announcement by Dr. Garfield:

B. F. Goodrich Co. for manufacture of gas masks; Goodyear Tire & Rubber Co., manufacture of gas masks; Packard Motor Co., manufacture aircraft and signal corps products; Ford Motor Co., Lincoln Motor Co., Trego Motors Corporation, Nordyke and Marmion Co., Pittsburgh Engine Co., Wright Martin Aircraft Corp., Willys Overland Co., Aeronautical Engineering Corp., General Motors Corp., Curtiss Aeroplane and Motors Corp., Thos. Morse Aircraft Corp., Fisher Body Corp., Dayton Wright Airplane Co., Standard Aeroplane Corp., Engel Aircraft Co., West Woodworking Co., American Propeller Co., Hartzell Walnut Propeller Co., and the Astoria Veneer Mill & Dock Co., and others for the manufacture of aircraft and aircraft products.

7000 Mechanics for France

WASHINGTON, D. C., Jan. 21—Seven thousand mechanics are required for early service in France by the Aviation Section of the Signal Corps, the urgency being such that these should leave for France about Feb. 1. Previous to leaving for France they will undergo a short preliminary training at Fort Hancock. The men are required for various mechanical lines and will be organized into four regiments. Those eligible for enlistment must be outside of draft ages, and the ages desired by the Signal Corps are 18 to 20, inclusive, and 31 to 40, inclusive.

Of the total 7000, approximately 3500 mechanics familiar with gas engine repair, etc., are needed. In addition, the classification of men follows:

Automotive mechanics.....	3500
Ignition men.....	300
Truck drivers.....	194
Blacksmiths and forgemen.....	220
Canvas workers.....	100
Cabinet workmen.....	500
Cooks.....	200
Harness makers.....	20
General mechanics.....	400
Lathe men.....	160
Machinists (planers and millers).....	116
Tool makers.....	640
Sheet metal workers.....	460
Wheelwrights.....	220
Welders.....	80
House painters.....	40
Sign painters.....	40

In the organization of these men into regiments the classification is as follows:

Master signal electricians.....	82
Sergeants, first class.....	522
Sergeants.....	1806
Corporals.....	2064
Privates, first class.....	2024
Privates.....	504

The pay for these different classifications covers a wide range. The master signal electricians receive \$87 per month, and with allowances for dependents, reaches \$129.70. The pay for sergeants, first class, is \$53, which, with allowances, reaches \$96. For sergeants the pay is \$44, which may reach \$85 with allowances; for corporals, \$36, and to \$75 with allowances, and for privates \$30 to \$68.50 with allowances.

All men enlisting will have to do so through local recruiting offices, which are scattered over the country.

This call for skilled workmen offers a very useful field for those desiring to get into this work in France. Undoubtedly these workers will all be located in the great repair and maintenance depots to be established back of the lines in France.

Double Aviation Appropriation

WASHINGTON, D. C., Jan. 21—Major-General George O. Squier of the Signal Corps and member of the Aircraft Production Board is asking Congress today for \$1,032,294,260. This amount almost doubles the \$640,000,000 already allotted for the Aviation program, and does not include \$105,000,000 additional which is estimated for the needs of the Signal Corps.

General Squier explained behind closed doors the progress already accomplished and gave the figures and technical details showing what it is expected this billion dollars asked for will accomplish. The Aircraft Board operating on a very efficient basis eliminates all red tape in its methods. It is spending an average of \$2,000,000 a day and no contractor has ever to wait more than twenty-four hours for payment. Plans conceived in the morning are voted on at noon and put into operation before night. The need for the billion dollars is created by the fact that the money already allotted has for the most part already been converted into fighting material and into the accessories needed for the conquest of the air.

Washington Dealers Close

WASHINGTON, D. C., Jan. 21—The automobile dealers of this city have all closed in compliance with ruling of the Fuel Administration. A few service stations are staying open but only with sufficient fire to keep the cars in the shops from freezing and only such work is being done as is necessary to keep customers' cars in operation. Those places where shops are on the upper floors have arranged to do the shop work on the ground floor during the emergency period. A meeting of the Automobile Trade Association will be held some time this week to decide on service plans for the coming nine Mondays.

Car and Truck Maker Advance Their Prices

Haynes Puts Up Prices and Schedules Further Increase—Republic Trucks Advance

KOKOMO, IND., Jan. 19—Factory prices of all Haynes models have been increased as follows:

Model	New Price	Old Price
39—4-pass. roadster (formerly Model 37).....	\$1825	\$1725
38—5-pass. touring (formerly Model 36).....	1725	1595
39—7-pass. touring (formerly Model 36).....	1825	1725
39—Sedan (formerly Model 37).....	2585	2390
44—7-pass. touring (formerly Model 41).....	2785	2295

In addition, the following new models are being built:

Model	Price
44—Sedan (12 cyl.).....	\$3385
44—Coupe (12 cyl.).....	3335
44—Town car (12 cyl.).....	3985
39—Coupe (6 cyl.).....	2535
39—Town car (6 cyl.).....	3250

The prices of all touring models will be increased an additional \$125 on March 1. Cars leaving the factory up to that date will be charged for at the present rate, but after March 1, even if ordered in advance, the new price will hold.

Republic Truck Raises Prices

ALMA, MICH., Jan. 17—The Republic Motor Truck Co. has increased the price of its models according to the following schedule, all prices being quoted in single units or in fleets, f.o.b. Alma, Mich.:

	Old Price	New Price
¾-ton	\$ 895	\$ 995
1-ton	1195	1295
1½-ton	1550	1650
2-ton	1885	1975
3½-ton	2750	2950
5-ton	4250	4500

New United Trucks to Be Seen at Chicago

GRAND RAPIDS, Jan. 21—The new United worm-drive motor truck models, manufactured by the United Motors Co., will be on exhibition at 1231 Wabash Avenue, Chicago, during the time of the Automobile Show. The new series includes models of 1-, 2-, 3½- and 5-ton capacities. Prompt deliveries, due to the doubling of the factory capacity, are assured for the coming season, and will start about the beginning of February. Prices, including bumper, radiator guard, hubodometer and painting, follow:

1-ton	\$1850
2-ton	2550
3½-ton	3450
5-ton	4500

\$75 on \$1 for Springfield Creditors

DETROIT, Jan. 17—Barney F. Everitt, acting as trustee for the bankrupt Springfield Body Co., states that general creditors will doubtless receive \$.75 on the \$1. The Detroit Shell Co. has purchased all the assets except the wood working machinery, stock on hand, accounts receivable and patents. Sale of the patents on the Springfield body to a large body maker is pending and patent litigation with the Fisher Body Corp. has been satisfactorily settled.

chased all the assets except the wood working machinery, stock on hand, accounts receivable and patents. Sale of the patents on the Springfield body to a large body maker is pending and patent litigation with the Fisher Body Corp. has been satisfactorily settled.

HERE'S A GOOD IDEA

DULUTH, Jan. 19—The Duluth Automobile Dealers' Association has unanimously voted to donate the entire proceeds of its fourth annual Automobile Show to be held the week of Feb. 23, which will represent several thousand dollars, to the American Red Cross Association, thereby doing their bit as an association.

Triple Gasoline Yield

NEW YORK, Jan. 21—A new process, which, it is stated, will triple the quantity of gasoline obtainable from crude oil, is said to have been perfected by Dr. A. H. Ramage, who is a member of the American Electro-Chemical Society. It is stated that a company has been formed in Detroit to manufacture and market gasoline produced under this new process, and that Christian Girl, head of the Standard Parts Co., Cleveland, is interested in the company, which also includes A. H. Goss, a Detroit capitalist; E. W. Farr, a Cleveland capitalist; S. A. Fletcher, an Indianapolis banker; H. B. Smith, a Bay City, Mich., banker; F. C. Finkenstaedt, Bay City, formerly head of the National Cycle Co., H. B. Earhart, head of the White Star Oil Co., Detroit, and A. E. Leopold, a Chicago capitalist. It is stated that the process differs from the Burton process and does not employ the cracking principle. Instead the oil is claimed to be chemically charged as it passes through the stills with the result that the yield of gasoline is tripled. It is said that the owners of the process have offered it to the Government for the duration of the war without cost.

Look for Tire Increase

NEW YORK, Jan. 21—Rumors of a general increase in tire prices cannot be confirmed. It is generally admitted that there undoubtedly will be an increase in the not far distant future though none of the companies will set a date. Within the week there has been a slight rearrangement of discounts on tubes by a number of the larger companies. Lists remain unchanged but dealers are being offered as much as 10 per cent additional discount in some cases.

Packard Truck Train Leaves This Week

DETROIT, Jan. 17—The next army truck train of thirty Packard trucks starts overland Friday morning. It will be followed by several Packard trucks and passenger cars being sent to Baltimore and Washington dealers. Each truck will carry another truck.

Insurance Theft Rate Not To Be Increased

New Rate Would Have Been 12% Higher and Owner Would Have to Stand Half the Loss

DETROIT, Jan. 19—Proposals for increased rates for automobile theft insurance have been withdrawn for the present. The contemplated changes which were to have become operative on March 1 had so many obnoxious features that it has been decided to postpone action temporarily. The cause of the question of increase is due to the alleged existence of an organized ring in Detroit for the purpose of stealing automobiles. A large number of arrests have been made, but the proportion of cars stolen in and around Detroit is still staggering. It was to combat such conditions that the rates for indemnity for automobile theft were advanced partially in Detroit and Wayne County on Nov. 1. The proposed new rates would increase the insurance on low priced cars 12 per cent, and also carries a 50 per cent co-insurance clause under which the owner would be forced to stand half of any loss. Some companies also favor the issuance of a policy excluding extra tires and appliances not furnished with original car. The accompanying tabulation gives the old and new rates:

	Old	New
Cars \$790 and under.....	\$3.75	\$5.35
Cars \$800 to \$1,399.....	3.00	3.85
Cars \$1,400 to \$2,499.....	2.00	3.85
Cars \$2,500 to \$3,499.....	1.75	2.10
Cars \$3,500 and over.....	1.50	1.85

Denver Secretary Resigns

DENVER, Jan. 21—Edgar W. Johnson, secretary of the Denver Automobile Trades Association for the last 2 years, gave notice to the board of directors tonight of his resignation to accept a position as assistant secretary of the Norton-Buick Auto Co., Buick agent for Denver and vicinity and General Motors Co. truck distributor for Colorado and adjacent territory. The change is to take place Feb. 1, and Secretary Johnson's successor has not yet been chosen. The membership has practically doubled during his term of office and has now reached the 150 mark.

Government Work for Haynes

INDIANAPOLIS, Jan. 18—The Haynes Automobile Co., Kokomo, was assured by Government officials in Washington last week that the company soon would be given a contract for the manufacture of 4000 motors and 4000 transmissions, entailing a cost of about \$3,000,000. These orders would keep the company's plant in capacity operation for six months, and the production of pleasure cars probably would be curtailed temporarily, according to representatives of the company.

Revisions Are
Made in Table
Every Week

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Model	Motor	S. A. E.	Ignition	Carburetor	Starting	Clutch	Gearset	Wheelbase	Truss	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Deluxe Top
ABBOTT	6-31x5 29.4 Remy		Stmng	Zenith	Remy	DD	3	122	34x4	SS	1595	1595	1595	2150	2150	2150	...
ALLEN	4-31x5 22.5 Conn		Stmng	A-Lite	D	3	112	32x4	SS	...	11095	1095	...	1305	1305	...	...
AMERICAN	6-31x5 29.4 G & D		Zenith	G & D	D	3	122	32x4	SS	...	1375	...	...	...	...	...	...
ANDERSON	6-31x5 29.4 Conn		Zenith	Wetls	DP	3	120	33x4	SS	...	**1465	...	...	2165	...	...	...
APLUXE	6-31x5 29.4		Zenith	Wetls	D	3	...	...	...	...	**1925	...	...	...	...	...	...
APRERSON	6-31x5 29.4 Remy		Radd	Bijur	DP	3	120	35x4	SS	...	12200	2200	...	...	...	...	...
ATL	6-31x5 33.8 Remy		Johnson	Bijur	DP	3	120	35x4	SS	...	12550	2550	...	...	...	...	...
AUBURN	6-31x5 25.3 Remy		Radd	Wetls	DP	3	120	34x4	SS	...	1345	1345	...	...	...	...	...
AUSTIN	6-31x5 29.4 Delco		Radd	Delco	DP	3	131	35x4	SS	...	1595	1595	...	...	...	...	...
BY-King	12-21x5 39.6 Delco		Stmng	Delco	D	6	142	34x4	QD	...	3750	3750	4000	4550	4550	...	...
BIDDLE	4-31x5 22.5 Ertmann		Zenith	G & D	DP	4	121	32x4	QD	...	2600	...	12650	...	4100	4000	...
BOUR-DAVIS	6-31x5 29.4 West		Stmng	West	DP	3	118	32x4	QD	...	...	1885	...	...	...	...	...
18B	4-31x5 22.5 West		Miller	West	DP	3	118	32x4	...	...	...	...	...	...	...	...	...
BREWSTER	4-4 25 25.6 Bosch		Zenith	U.S.L.	C	3	125	34x4	SS	...	7900	...	...	8400	8000	...	...
BRISCOE	4-31x5 19.3 Conn		Buick	A-Lite	C	3	104	30x4	C	...	725	725	...	...	...	...	...
BUICK	4-31x5 18.2 Delco		Marrel	Delco	C	3	106	31x4	C	...	795	795	...	...	...	...	...
E-4-34-35	4-31x5 27.3 Delco		Marrel	Delco	DP	3	118	32x4	SS	...	1265	1265	...	11695	1185	1845	...
E-4-45	6-31x5 27.3 Delco		Marrel	Delco	DP	3	124	34x4	SS	...	...	...	1495	...	2175	...	...
E-49	6-31x5 31.2 Delco		Own	Delco	D	3	122	35x4	SS	...	2805	...	2805	3650	4145	...	...
CADILLAC	8-31x5 31.2 Delco		Own	Delco	D	3	122	35x4	SS	...	2805	...	2805	3650	4145	...	...
57	8-31x5 31.2 Delco		Own	Delco	D	3	122	35x4	SS	...	2805	...	2805	3650	4145	...	...
CASE	6-31x5 29.4 Wetls		Radd	Wetls	D	3	125	35x4	SS	...	11875	...	1875	...	**2275	...	...
CHALMERS	6-31x5 25.3 Remy		Stmng	Wetls	DP	3	117	32x4	SS	...	1365	1365	1450	...	1850	2925	...
6-30	6-31x5 25.3 Remy		Stmng	Wetls	DP	3	117	32x4	SS	...	1365	1365	1450	...	1850	2925	...
CHANDLER	6-31x5 29.4 Bosch		Radd	Wetls	DP	3	123	34x4	SS	...	11595	...	1595	2195	2295	2895	...
CHEVROLET	4-31x5 21.7 Remy		Zenith	A-Lite	C	3	102	30x4	C	...	660	685	...	...	1060	...	...
490	4-31x5 21.7 Remy		Zenith	A-Lite	C	3	102	30x4	C	...	935	935	...	...	1475	...	...
FA-2	4-31x5 36.4 Remy		Zenith	A-Lite	C	3	120	34x4	SS	...	1385	1385	...	...	...	...	...
COLE	8-31x5 39.2 Delco		Stmng	Delco	C	3	127	35x4	SS	...	2395	1995	2195	2495	2595	...	...
870	8-31x5 39.2 Delco		Stmng	Delco	C	3	127	35x4	SS	...	2395	1995	2195	2495	2595	...	...
COLUMBIA	6-31x5 25.3 A-Kent		Stmng	Wetls	DP	3	115	32x4	...	...	11495	1350	...	...	1995	...	...
CAD	6-31x5 25.3 A-Kent		Stmng	Wetls	DP	3	115	32x4	...	...	11495	1350	...	...	1995	...	...
COMET	6-31x5 29.4 Delco		Miller	Dyneto	DD	3	125	33x4	...	...	...	...	1285	...	...	...	...
COMMONWEALTH	6-31x5 19.6 A-Kent		Carier	Dyneto	DD	3	112	32x4	SS	...	1995	995	...	...	...	...	...
440	4-31x5 19.6 A-Kent		Carier	Dyneto	DD	3	112	32x4	SS	...	1995	995	...	...	...	...	...
CROW-ELKHART	6-31x5 19.6 Conn		Zenith	Dyneto	D	3	114	32x4	SS	...	...	...	...	1295	1395	...	...
CE-36	6-31x5 19.6 Conn		Zenith	Dyneto	D	3	114	32x4	SS	...	...	...	...	1295	1395	...	...
CUNNINGHAM	8-31x5 45.0 Delco		Stmng	West	D	3	123	35x4	...	...	...	...	...	...	...	...	...
8-31x5	45.0 Delco		Stmng	West	D	3	123	35x4	...	...	...	...	...	...	...	...	...
DANIELS	8-31x5 33.8 Wetls		Zenith	Wetls	D	3	127	34x4	QDR	...	...	...	...	...	...	...	...
DAVIS	6-31x5 25.3 Delco		Stmng	Delco	C	3	119	34x4	...	...	...	...	...	...	1850	...	...
H. I. K	6-31x5 29.4 Delco		Stmng	Delco	C	3	125	34x4	...	...	...	...	...	...	1785	1785	...
J. I. K	6-31x5 29.4 Delco		Stmng	Delco	C	3	125	34x4	...	...	...	...	...	...	1785	1785	...
DISPATCH	4-31x5 22.5 Bosch		Radd	U.S.L.	CU	4	120	36x4	QD	...	1150	...	1250	1400	1400	...	...
DIXIE FLYER	6-31x5 16.9 Conn		Carier	Dyneto	D	3	112	32x4	SS	...	1995	995	...	...	1875	...	...
1355	6-31x5 16.9 Conn		Carier	Dyneto	D	3	112	32x4	SS	...	1995	995	...	...	1875	...	...

PAN-AMERICAN									
G-5	6-31x5	23.4 G & D	Radd	G & D	D	3	130	32x4	SS
J-7	6-31x5	26.4 Boech	Radd	G & D	P	3	138	34x5	SS
PATERSON									
6-45	6-31x4	25.3 Debo	Stumb	Debo	C	3	120	32x4	C
PERLESS									
46	8-31x5	33.8 A.Kent	Special	A-Lite	DD	3	125	35x4	SS
PIERCE-ARROW									
38-C-4	6-4	20.1	Own	Wetsh	C	4	134	34x4	QD
48-B-4	6-41x5	48.6 Boech	Own	Wetsh	C	4	142	35x5	QD
66-A-4	6-5	27	60	Boech	Own	Wetsh	C	4	147
PILOT									
6-45	6-31x5	23.4 Debo	Tilm	Debo	DP	3	119	32x4	SS
PREMIER									
6-C	6-31x5	27.3 Debo	Johnson	Debo	DP	3	121	32x4	SS
PRINCESS									
36-F	4-31x4	22.5 Splitoff	Schebler	Dino	D	3	108	32x4	SS
REGAL									
J	4-31x4	19.6 A.Kent	Carier	A-Lite	C	3	106	30x3	QD
REO									
6-31x5	30.4 Remy	Radd	Remy	DD	3	126	34x4	SS	
4-41x4	27.2 Remy	Johnson	Remy	DD	3	115	34x4	SS	
ROAMER									
6-54	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
D-4-75	4-4	26	25.6 Boech	Stumb	Bijur	DP	3	128	32x4
ROSS									
8-31x5	33.8	W.Land	DD	3	130	35x4	SS		
SAXON									
4-21x4	12.1 A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	
6-21x4	19.8 Remy	Stumb	Wagner	DD	3	112	32x3	SS	
SAYERS									
6-31x4	25.3 Debo	Debo	P	3	118	32x4	SS		
SCRIPPS-BOOTH									
H	6-21x3	22.0 Remy	Zenith	Wagner	DD	3	120	32x4	SS
G	6-31x4	21.7 Remy	Zenith	Remy	C	3	110	30x3	C
SIMPLEX									
6-41x5	45.9 Eisman	Nwrenb	Boech	D	4	143	37x5	QD	
SINGER									
6-4	25.1	Boech	Radd	Wetsh	DD	4	139	35x5	QD
STANDARD									
8-31x5	33.8 Splitoff	Zenith	Splitoff	D	3	127	34x4	SS	
STANLEY									
2-45	130	35x4	SS						
STEARNS									
4-31x5	22.5 Remy	Schebler	Wetsh	DD	3	119	34x4	SS	
8-31x5	33.8 Remy	Radd	Wetsh	DD	3	125	33x4	SS	
STEPHENS									
Salient Six	6-31x4	25.3 Debo	Stumb	Debo	P	3	118	32x4	SS
STUDEBAKER									
SH-4-40	4-31x5	19.6 Remy	Schebler	Wagner	C	3	112	32x3	SS
EH-6-50	6-31x5	29.4 Remy	Schebler	Wagner	C	3	119	32x4	SS
EG-6	6-31x5	36.0 Remy	B&B	Wagner	C	3	126	33x4	SS
STUTZ									
S	4-41x5	30.6 Boech	Stumb	Remy	C	3	120	32x4	SS
SUN									
17	6-31x5	29.4 Remy	Radd	Remy	DP	3	116	34x4	SS
TEMPLAR									
4-31x5	18.2 Remy	Zenith	Remy	P	3	118	32x4	SS	
VELIE									
38	6-31x4	25.3 Remy	Radd	Remy	DP	3	115	32x4	SS
39	6-31x5	29.4 Remy	Radd	Remy	DP	4	124	33x4	SS
WESTCOTT									
S-18	6-31x5	29.4 Debo	Radd	Debo	DD	3	125	35x4	SS
WHITE									
16-Valve	4-41x5	28.9	Own	L-N	P	4	124	35x5	U
WILLIS-KNIGHT									
88-4	4-41x4	27.2 Conn	Titan	A-Lite	C	3	121	34x4	SS
88-3	8-31x4	36.4 Remy	Zenith	A-Lite	C	3	125	34x4	SS
WILLIS									
88-6	6-31x5	29.4 Conn	Titan	A-Lite	C	3	120	33x4	SS
WINTON									
33	6-31x5	33.7 Boech	Radd	Bijur	DD	4	128	36x4	QD
48	6-41x5	48.6 Boech	Radd	Bijur	DD	4	138	37x5	QD
WOOD'S									
Dual Power	4-21x4	12.1 A.Kent	Stumb	Own	Mag	124	35x4	QD	
14-passenger. 12-passenger. t-town car.									
Convertible.									
ABBREVIATIONS: "A-C" Allie-Chalmers, "L-N" Leese-Neville, "B & B" Ball & Ball, "Attn" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spld" Splitoff, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37x5x5/8 means that the rear tires are 37x5x5/8, and the front are smaller. Detachable top, 300x, means \$300 extra.									

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Milwaukee, Wis.....	Milwaukee Automobile Dealers Inc., Auditorium. First 7 days, passenger cars; last 3 days, commercial cars. Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.....	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.....	National Motor Show of Eastern Canada, Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.....	Seventeenth Annual, Cleveland Automobile Show Co., Wignmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.....	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Stuart, Mgr.	Jan. 19-26
Buffalo, N. Y.....	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.....	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.....	Scranton Motor Trades Assn., Armory, Hugh B. Andrews, Mgr.	Jan. 21-26
Portland, Ore.....	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Oklahoma City, Ok..	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.....	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Baltimore, Md.....	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory.	Jan. 22-26
Allentown, Pa.....	Lehigh Auto. Trade Assn., Travler Motor Co.'s Garage. P. W. Leisnering, Publicity Mgr.	Jan. 23-28
York, Pa.....	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan. 26-Feb. 3
Bridgeton, N. J.....	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.....	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.....	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Chicago.....	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.....	Academy, Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.....	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.....	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Indianapolis, Ind.....	Indianapolis Automobile Trade Assn., Diamond Chain Works Bldg. John B. Orman, Mgr.	Feb. 25-Mar. 2
Minneapolis, Minn.....	Twin Cities Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars. Trucks.	Feb. 23-Mar. 2 Mar. 5-9
Kalamazoo, Mich.....	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9
Bronx, N. Y.....	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.....	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.....	Automobile Trade Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.....	Portland Automobile Trade Assn., Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.....	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Kansas City, Mo.....	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.....	St. Louis Auto Mfrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Toledo, O.....	Toledo Auto Shows Co., Terminal Bldg. H. V. Euelow, Mgr.	Feb. 11-17
Ft. Wayne, Ind.....	Automobile Trade Assn., Concor- dia Gymnasium.	Feb. 13-16
Hartford, Conn.....	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.....	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.....	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.....	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.....	United Shows Co.	Feb. 18-23
Syracuse, N. Y.....	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.....	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Duluth, Minn.....	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.....	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.....	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.....	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.....	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vleet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.....	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Quincy, Ill.....	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Bridgeport, Conn.....	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Columbus, O.....	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2
Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Mar. 6
Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston.....	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.....	Clinton Automobile Dealers' Ass'n, Coliseum.	Mar. 6-9
St. Joseph.....	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.....	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Green Bay, Wis.....	Brown County Automobile Trade Assn.	Mar. 8-11
Cedar Rapids, Ia.....	Cedar Rapids Auto. Trade Assn., Auditorium.	Mar. 11-16
Fargo, N. D.....	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15
Great Falls, Mont.....	Montana Automobile Distributors' Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
San Francisco, Cal.....	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Holdrege, Neb.....	Second Annual of Southwest Nebraska.	Mar. 20-23
Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Red Bank, N. J.....	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Stockton, Cal.....	Third Annual San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Calumet, Mich.....	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20

Conventions

Montreal, Can.....	Convention of all men interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago, Ill.....	Annual Convention, Garage Owners' Assn. of Ill., Green Room, Congress Hotel.	Jan. 29-31
Richmond, Va.....	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	Jan. 21-26
Hot Springs, Va.....	Third Annual World's Salesman-ship Congress.	June 16-20

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 5

New York, January 30, 1918

Ten cents a copy
Two dollars a year

What Will You Do If You Can't Get Cars?

*That Situation is Quite Probable With Dealers
Who Do Not Make Early Arrangements for Territory*

Never in the history of the world has there been so much money in circulation as there will be during the next twelve months.

The government program calls for a monthly expenditure exceeding a billion dollars. An appropriation of two hundred million dollars for railroad equipment is planned. Investors are to be guaranteed returns on their holdings. Farmers know there will be a certain and profitable market for all they can produce. There is evidence that wages are to be increased—in some lines the discussion mentions as much as 40 per cent.

Everyone knows what so much money in circulation does to the demand for automobiles. Add to that the growing needs of the nation for motor car transportation caused by the increased loads upon the railroads.

Now think how serious the situation promises to become because of curtailed production. This year's output will be at least 40 per cent under that of last year.

All the facilities of the Hudson factory that can be used to advantage for government work will be devoted to making army trucks and transmissions for army tanks. It leaves us with facilities for building 15,000 Hudson Super-Sixes.

Fifty thousand Super-Sixes, more built than of any other fine car, have been sold during the past two years. You can see how inadequate the number available this year will be.

We are merely meeting the minimum needs of our Distributors. They will first of all take care of their most loyal dealers. The eleventh-hour contractors may find it too late to arrange for deliveries.

Delayed decision on your part may deprive you of cars this year.



HUDSON MOTOR CAR CO.

Detroit, Michigan



Van Sicklen

ELGIN

SPEEDMETERS

A standard among speed-recording instruments as the Elgin watch is a standard of timekeeping.

Reliability and accuracy distinguish them both.

The Van Sicklen Company, Elgin, Ill.
Factory—Elgin National Watch Company

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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"NORMA" BALL BEARINGS

(Patented)



Service—that's what the buyer of a car or truck pays for. Its value to him lies in the measure of the service it renders. And this service must be a thing inherent throughout the machine—not merely in body, chassis or engine, but in every minute detail entering into their construction and equipment.

No part of the equipment is more vital than the magneto and lighting generator. And no part of these accessories is more vital than their bearings. Therefore—makers of high-grade, responsible magnetos and lighting generators have standardized on "NORMA" Precision Bearings.

**Be Sure—See That Your
Electrical Accessories
Are "NORMA" Equipped**



THE NORMA COMPANY OF AMERICA

1790 BROADWAY NEW YORK

Ball, Roller, Thrust and Combination Bearings

GRAY & DAVIS STARTER for FORD cars

Every Ford is really complete when equipped the Gray & Davis way. Ford owners know the value of electric starting and lighting especially on rainy days or in cold weather.

The Gray & Davis system has made good on thousands of Fords everywhere.

Mr. Dealer

Handle this Ford starter; develop the sales that are awaiting you in your vicinity; just approximate the number of Ford owners and you can quickly total the business to be done in the territory.

Here is a splendid opportunity to equip Ford cars with a good starter which not only gives full satisfaction to the customer, but increases your own sales and profits.

Write to nearest Distributor or communicate with us.

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Fred Campbell Auto Supply Co.
Utica Cycle & Supply Co.
Charles Rubel & Co.
Auto Supply & Tire Co.
D. F. Owen Company
Universal Car Agency

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325 West Baltimore St.
1092 Commonwealth Ave.
846 Main St.
16 McFarland St.
3845 Wabash Ave.
228 West Seventh St.
1010 Chestnut Ave.
129 East Gay St.
1602 Woodward Ave.
618 First Ave., North
Cor. Church & Trumbull Sts.
426 North Meridian St.
1504 Grand Ave.
1011 South Olive St.
661 South Fourth St.
Monroe Ave. at Third St.
509 Cedar St.
14 East 8th St.
Baronne & Perdido Sts.
244 West 49th St.
235 Central Ave.
316 South 19th St.
211 Sixth St.
219 North Broad St.
5986 Center Ave., E. End
Broadway at Oak
17 Snow St.
1012 West Broad St.
21 Plymouth Ave.
43-59 East 4th St., South
538-546 Golden Gate Ave.
817 East Pike St.
1105 First Ave.
1109 Locust St.
117 Columbia St.
1312 Fourteenth St., N. W.
227 South Lawrence Ave.
219 Franklin St.
Chatham & Ferry Sts.

GRAY & DAVIS, Inc., Boston, Mass.
CANADA—UNIVERSAL CAR AGENCY, WINDSOR, ONT.

MOTOR WORLD

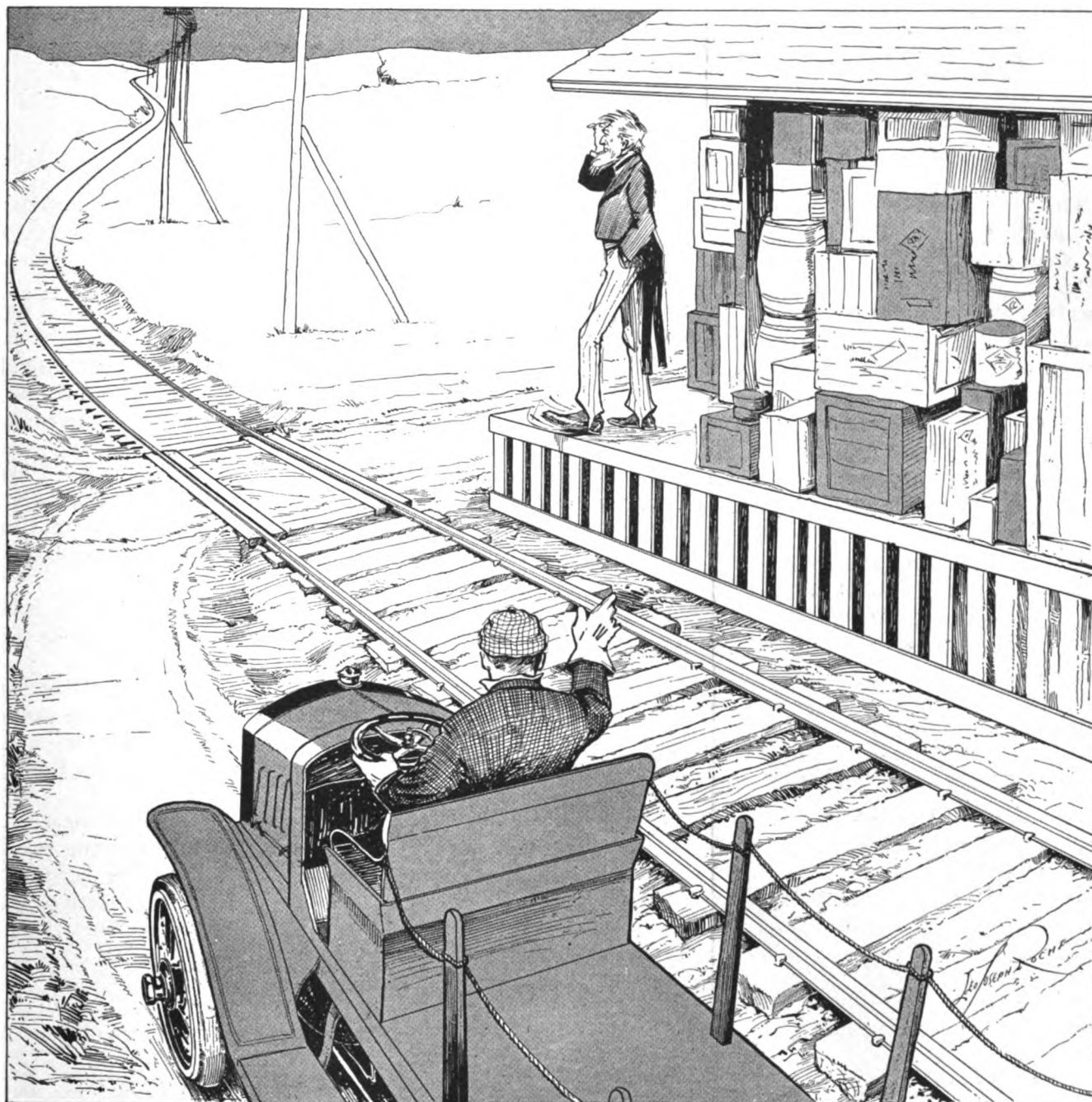
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, January 30, 1918

No. 5

Let Me Help



Experts say they believe the motor truck can take many of the tangles out of our freight situation. The plan has promise. The overland driving of government trucks has proven successful. There is a big field of possibilities for dealers in developing transportation systems, either by owning trucks themselves or interesting others in the idea

What You Will You Will Get

*Chicago Show Reveals That Dealer's 1918 Business Depends
Upon the Dealer—If He Wants It He Can Have It
by Simply Going After It*

CHICAGO, Jan. 26.—The dealer who wants good business during 1918 can have it—provided he goes after it.

This just about sums up the opinion of the many experts of the industry who are in Chicago to-day for the opening of the 18th Chicago motor car show.

They say there are dealers who to-day are having a good business—simply because the dealers believe good business is possible and are going after it.

And there are other dealers who are having a poor business—simply because the dealers believe good business is impossible and are making no effort to get it.

And this situation, close observers say, will govern probably the whole year of 1918.

One fact illustrates how big a part the dealer's frame of mind plays. It is said that dealers who had a good business last year are going through into the new year with the beginning of good business and the prospect of much more business, and that dealers who had a poor year can see nothing in the future.

Why?

Because the dealer who had good business is full of confidence and determination. He has tasted good business and is determined to have more, whereas the dealer who had a bad run of business is discouraged and is not even making the effort that he could. It is entirely a matter of how the dealers feel about it.

If they go after business hard enough they get it.

Wherefore, the one big thought for all dealers now, and the thought that is the theme of every dinner and sales meeting scheduled for show week, is:

BUCK UP! SEE THE SUNSHINE! WORK HARD AND MAKE SOME MONEY!

It is expected that far more dealers will attend the Chicago exposition. They are coming in considerable numbers, according to reports from all quarters, but most of them will not be here until the middle of the week. The principal reason for this delayed arrival is that the show will close Monday because of the fuel administration's order. This means that, aside from the Saturday opening, the show really doesn't begin until Tuesday morning.

There are not so many exhibits of cars or accessories as a year ago. There were 260 exhibits a year ago; this year there are 225.

Compared with the New York show of this season, the number of car makers exhibiting is the same, 79. There were 106 more accessory exhibitors at New York, there being only 146 here, while in New York there were 252.

The usual buildings are used, the Coliseum, Annex, Greer building and Armory, and the same old "Pneumonia Alley" is as cold as ever between the Coliseum and the Armory. There is a cloth roof over it, but it has the appearance and feeling of a straw hat in this wintry weather.

The decorative scheme this year is patriotic. Flags of the allies are worked in, and about the gallery in the Coliseum are the seals of the different states. Spotlights atop the central pillars illuminate the flags.

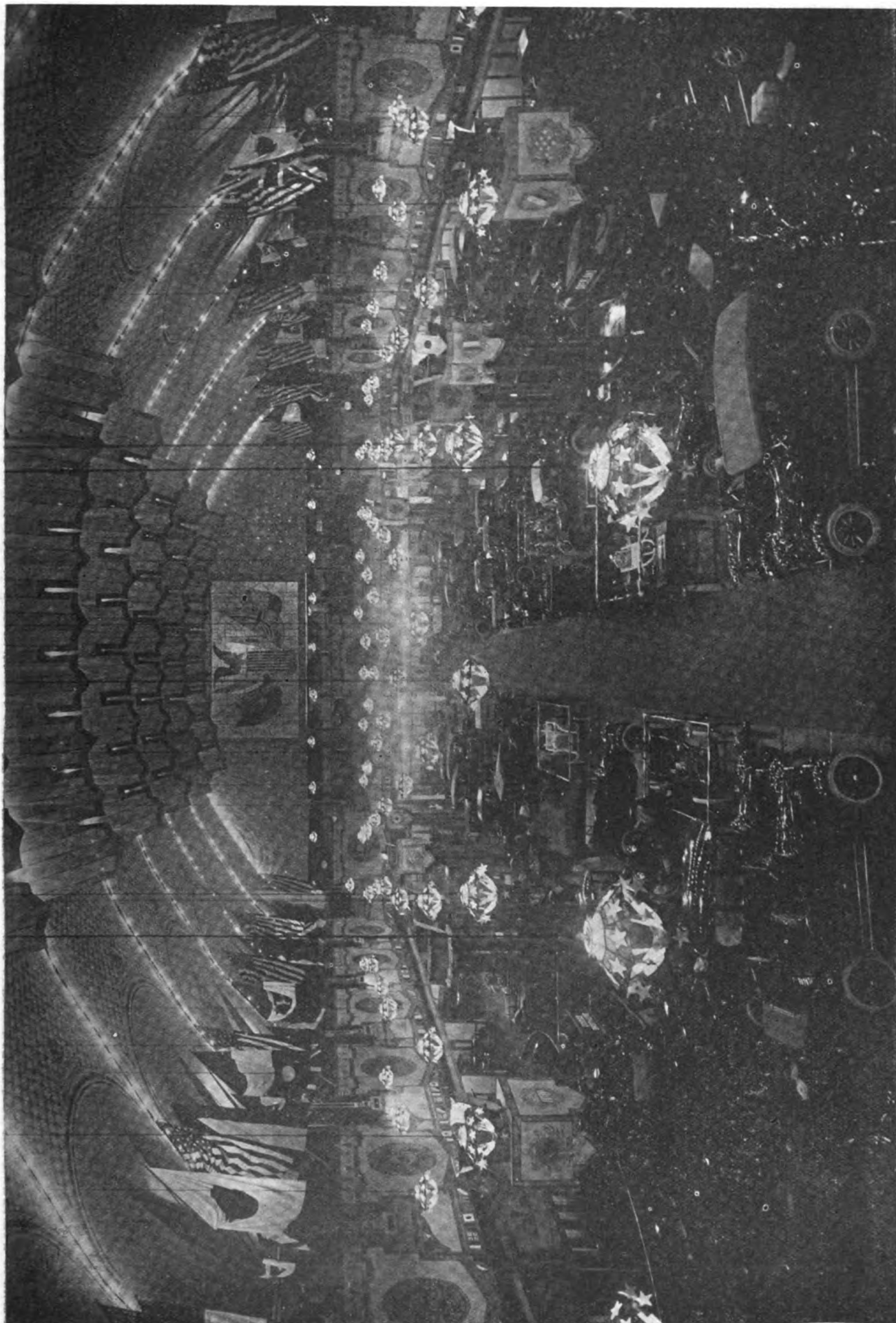
The exhibits are the same big centers of interest as in other years. Most of the exhibits in the Coliseum contain

chassis or motor displays and these are always the point of greatest interest. Looking down from the gallery, one can always detect a knot of people about these mechanical exhibits.

The accessory exhibits appear to better advantage than they did at the New York show. The fence arrangement that is always used at Chicago, and which

doesn't seem to have been changed much for several years, sets off the goods well, and there seems to be a better attempt at displaying the goods than was the case in New York.

The opening was under very adverse circumstances. A few days ago Chicago was buried under tons of snow, which is still heaped in great piles along the



It has been said, and not without reason, be it added, that Sam Miles always saves his best ideas for decorating the Coliseum in Chicago. Judge for yourself. This is what dealers who visited the show saw when the lights were switched on.

streets. This morning the snow began again, with a high wind, and when the show opened a regular Chicago blizzard was in progress. Despite this the show opened as usual.

Railroad conditions have been very bad and there has been speculation as to whether the exhibitors could reach the show, but about the only bare spot at 2 o'clock was the Velie exhibit and by evening this had cars in it. The old show was there in all its glory on the first day.

This noon the Chicago Automobile Trade Association hit the keynote of the show when it put on a "backbone" luncheon at the Lexington. George M. Graham, commercial manager of the Pierce-Arrow Motor Car Co., Buffalo, told the dealers and their salesmen that "blue funk" and fear of the future would hurt business and that what is needed is strong and active men who will go out and fight for the business that is there if gone after.

After that the dealers went to the opening of the show at 2 o'clock and at 3 o'clock listened to an official opening by Governor Lowden of Illinois.

Many Dealer Dinners

The dinner folks didn't begin to set the dates for their dinners until Wednesday and on that day there are affairs for Cole, Franklin, Oldsmobile, Velie, Dodge, American truck, and Nash, and two for

The Count

	1918	1917
Total Exhibitors	225	260
Car Exhibitors	79	92
Accessory Exhibitors	146	168
Grand Total (cars & chassis)	298	337
Four-cylinder	81	97
Six-cylinder	164	170
Eight-cylinder	30	41
Twelve-cylinder	8	18
Steam	2	—
Electric	13	11

Elgin. Thursday there are: Reo, Paige, Hupmobile and two for Maxwell-Chalmers, the latter staging what is promised to be a unique affair Thursday evening, being theatrical in character. The S. A. E.'s big war dinner is Friday night.

The driving away of cars and other methods of getting them from the factory to the dealer are big topics of discussion. The drive-away is discussed elsewhere in another story.

An illustration of how the dealer must jump into the situation and do unusual things this year is furnished by the action of the Kansas City Oakland manager. A circus wintered at Topeka, Kan., and the Oakland man rented the circus train of 60 flat and box cars until spring. These were repainted with the Oakland name and the train carries 180 Oaklands

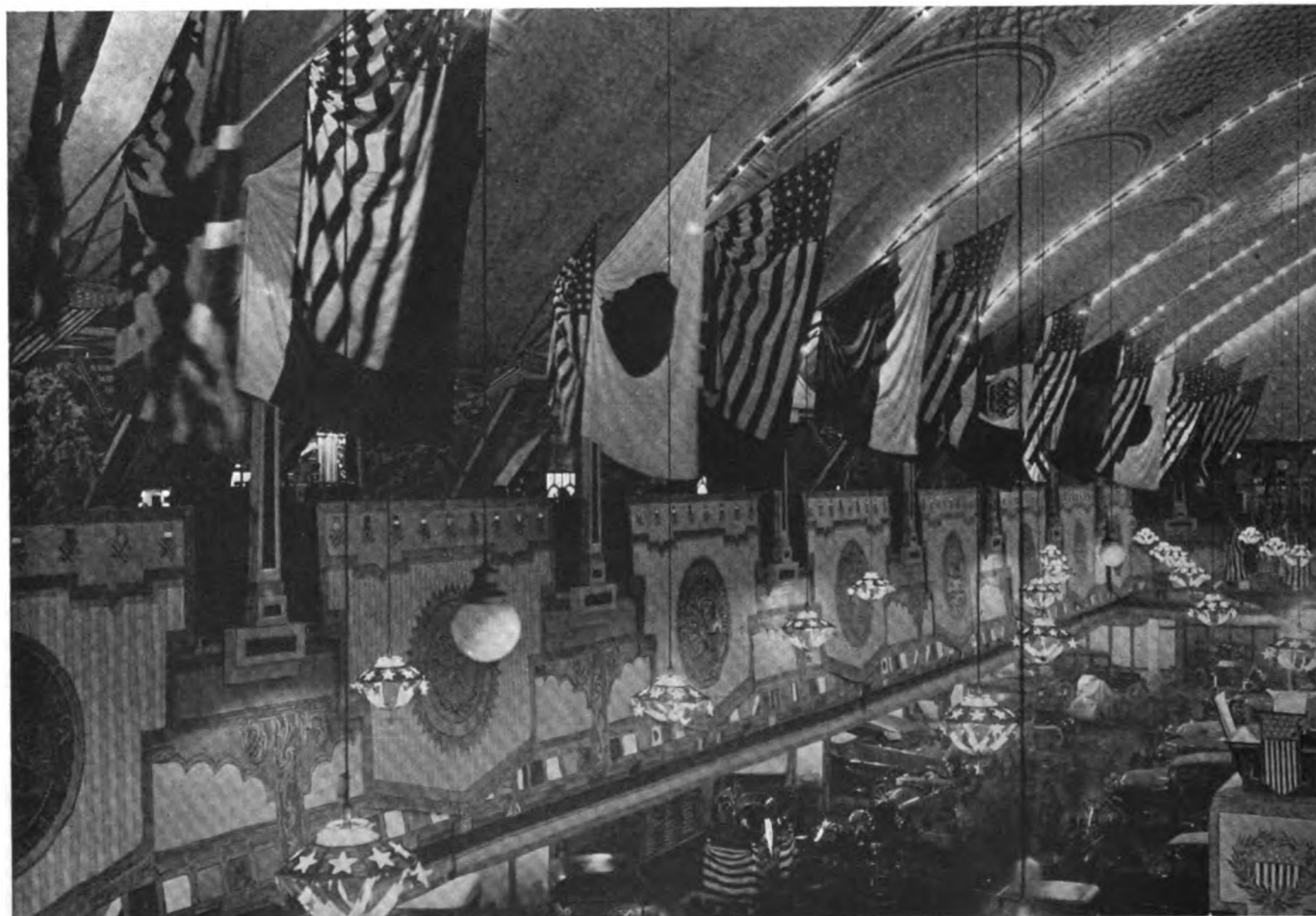
each trip. It has been from the factory to Kansas City twice and to Chicago once. Oakland also has 35 flat cars that run between the factory and Chicago, and take 500 cars a month to this city. The cars are unloaded outside the city, the train not being permitted to get into the congested yards where it might be tied up.

The South and Southwest is the motor car manufacturer's bonanza right now. Southern crops are good, there is also industry in the South where there never was industry before, and cars are selling rapidly. Texas is said to be crying for cars, and a good delegation from the Lone Star State is said to be due to arrive at the show.

The South is Booming

Illustrating the boom condition of the South: In Crowley, La., a town of 5000, 150 miles west of New Orleans, a dealer contracted for 50 Mitchells for a year. In the 3 months preceding Dec. 15 he sold 80. In Holly Hill, S. C., a small inland town listed with 342 people, the dealer contracted for 50 and sold 100 in four months. Isolated instances of this kind are frequent and the whole general southern business is said to be thriving.

What may happen later is related by one Chicago distributor as his own experience. He said dealers held off some weeks ago and took no cars. They



If you climbed to the balcony and didn't let your eyes wander too low, this is what the Coliseum decorations looked like. Like it?

thought there would be a production in excess of sales. Then they found they could sell more cars than they could get. And then they began to worry about how to get cars. This increased their sales spirit and impressed upon them the necessity of getting cars NOW.

He said when spring comes the dealers who have cars will reap a small harvest, while the dealers who haven't secured cars will find themselves up against a healthy demand—with no cars to sell.

The consensus of opinion is that the passing of the heavy snow of this winter and the coming of spring sunshine will sweep away at one brush a big part of the pessimism and mistaken ideas that now possess a large part of the public mind. The man who longs for country air and spring sunshine will realize that he cannot be an efficient man unless he gets it—and out into trade channels will come the money that he mistakenly thought was playing a patriotic part by hiding in an old sock.

The Harry Newman-Stratton Co. is this week staging a truck show in the Newman salesrooms, where the Maxwell truck is shown. Three buses, carrying 30 people each, run from the hotels to the Newman salesroom and to the Coliseum without charge on a 15-minute schedule.

There were a number of new cars at the show, though not so many as there were at the New York exhibit. You will find them illustrated and described on the pages immediately following page 43.—EDITOR.

HAVE YOU SEEN——?

In This Issue

1—HOW TO BUILD A SERVICE CAR

A LONG, hard winter; lots of repair and overhaul work to do; some towing in. You ought to have just such a car as is described on pages 23 to 27. You can build one from an old chassis by following these simple directions and working drawings.

2—HITTING THE STRETCHES

LEE CUSON, Detroit's biggest used car dealer, set out to discover whether his local advertising was bringing him dollars and cents return. What he discovered startled him so much he is reorganizing his whole advertising plan.

3—MOTOR WORLD WINDOW SERVICE

You'd hardly believe how easy it is to set up a real good window.

And Now For NEXT WEEK

How Rochester Dealers Are Selling Themselves

It's one of the best co-operative advertising ideas we have ever seen.

IN LAST WEEK'S ISSUE—JAN. 23

HUGH CHALMERS, Chairman Automobile Industries Committee, who is in close touch with everything in official Washington that affects the dealers throughout the country, made a wonderful talk before a gathering of 400 dealers at Cleveland. Read that address. It is the most instructive as well as the most inspirational thing that has come out of the war. It is a real message for YOU.

FACTORY "drive-aways" were also discussed for your advantage in last week's issue. The subject is of such vital interest to you that you cannot afford to miss the article.

ANOTHER feature in last week's issue had to do with farm tractors and what they will mean to dealers and garagemen in agricultural districts. Read it.

The Leader Must Lead

These Are Strenuous Times, And, As a Wise Man Has Said "You Must Be a Tractor, Not a Trailer."

ONE mid-west distributor who has recently given up his wholesale business because there was no money in it, laid the blame for it on the small town and country dealer, whom he declares the distributor has had to carry in many ways.

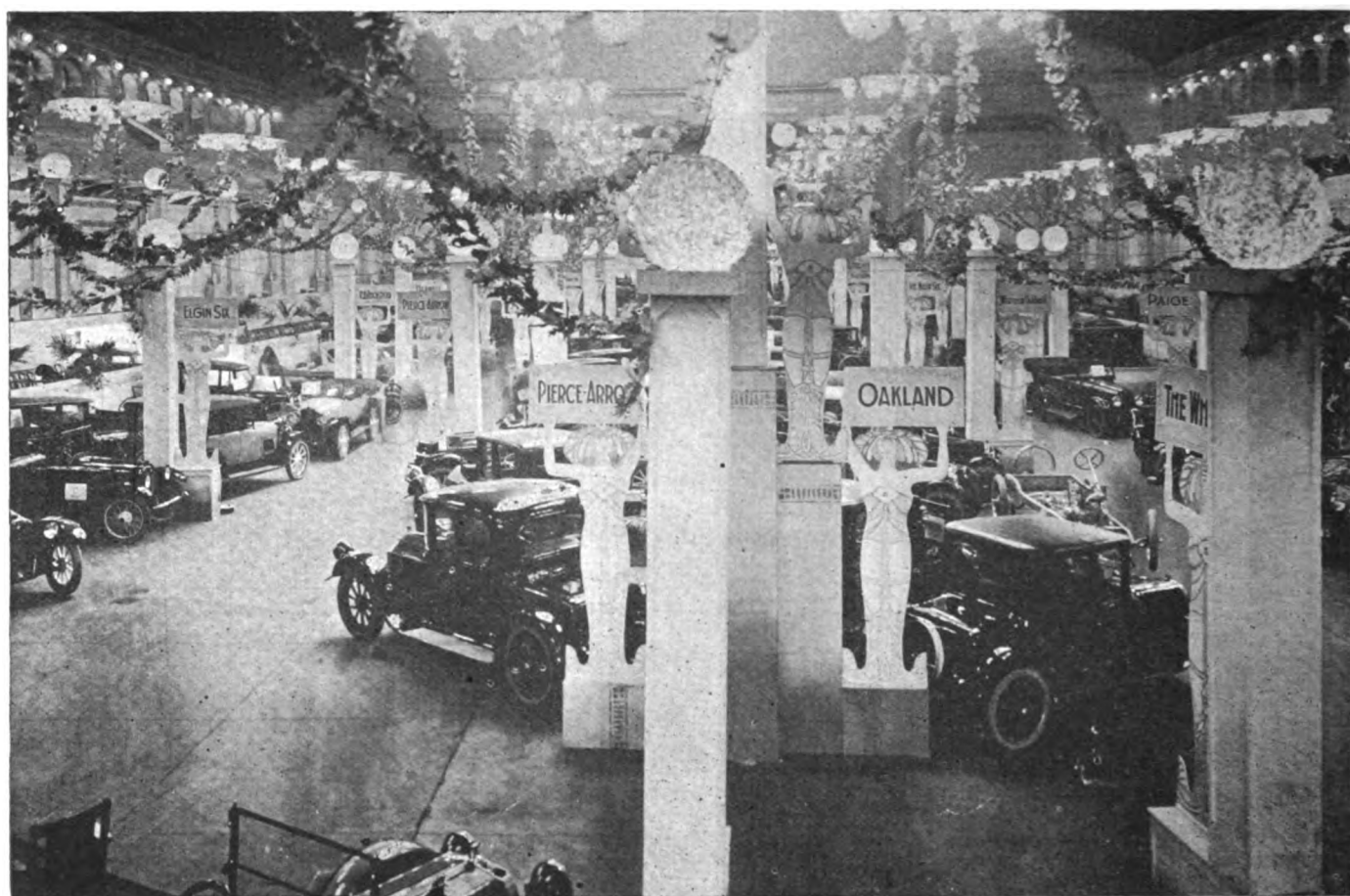
The distributor has had to finance the dealer, going to his country bank and arranging for the necessary accommodations on cars. The distributor has then had to introduce better business methods to the country dealer and has had constantly to drive him in the selling job.

It has been a constant push. The situation has been further aggravated by the country banker who is not a good business man and who has tightened up in the last six months and has made it correspondingly harder for the country dealer as well as the distributor who is taking care of this country dealer.

This broadside against the country dealer is unfortunate at this season of the year, and in this war year. The country dealer is the man closest to the farmer and the farmer is the man who is buying the cars.

The farmer is the man who must buy cars during the coming spring. *He cannot do without them.* War or no war, the country dealer must get in line and take care of the business that is going to come in the next few months. This country dealer should be right up on his toes. He cannot possibly as a human being be down in the dumps. If he is down in the dumps, it is imaginary and cannot be real.

Mr. Distributer, it is really up to you to take hold of these country dealers to-day as you have never done



Again we have to blame Dr. Garfield for failing to publish this picture of the Milwaukee show with the article which appeared last week. It is one of the most beautiful shows held this year and it will take a lot of beating

before. Crack the whip of harder work, or more brain power, over him. Get into his head that he is in a real business and that if the railroads cannot bring the cars to his town they can all be driven overland. Inject a new idea into that dealer. Get into his head the story of the cost of the horse. Here it is in a digested edition:

The day has arrived when the horse is too expensive for the farm. It takes 5 acres of land to keep a horse a year. We cannot afford such luxuries in these war days. We must use those 5 acres to better advantage. Those 5 acres are needed to grow wheat and corn and oats for our Allies in Europe.

It was never intended to use 5 acres of good fertile soil per year for each horse when you can get a car and get the food for it from the bowels of the earth. We have plenty of crude oil. We are to-day making a million gallons of gasoline more than we are using. The Creator never intended to starve men for the sake of feeding horses.

It is our patriotic duty to work the land of the farmer and do his other biddings by means of the crude oil

from the depths of the earth and leave the fertile acres to be more intensively cultivated to grow food in greater quantities for human beings.

Instead of it being patriotic for the farmer to work his horse and not buy the car, the real patriot is the farmer who from his 160 acres of land grows more grain and rears more cattle and sheep because he uses motor cars, motor trucks and motor farm tractors.

The greatest patriotism to-day is that which aims for the greatest good to our Allied cause in the war. Take an example:

How About It?

We have been going through a shortage of sugar for months. Suppose all the sugar plantations in Cuba, and in our southern states are worked by negroes and mules at a mule pace. That means that a limited cultivation is accomplished.

Convert this nigger and mule equipment into motor tractor and motor-truck equipment and you increase the acreage of sugar; you increase the supply and you furnish more sugar for this country and for Europe and for the world.

It is good patriotism to buy that

machinery that speeds up transportation, that speeds up cultivation, that grows more sugar.

The same is true on every farm in this country and in any other country. Hail to the farmer who can plow more with his tractor because he can work it 24 hours in the day and can plow later in the fall and every day in hot July and August!

Let us not brand that farmer with luxury when he buys his motor car, buys his farm tractor and buys his motor truck. That farmer is a patriot. He is one of the new order of patriots—that order imbued with efficiency.

We would not think much of our airplane engineers if they made a poorer engine than Germany, so that the Germans could drive us out of the sky. We would not have much patience with our commanders if they took the slow means of trailing our guns up to the front by mules when we can move them up by creeper tractors.

Who would be content with our army if it set out to do everything on horse schedule, when it must be done on motor schedule. There is no

(Continued on page 43)

What Cleveland Is Doing

to

- 1—Get the Crowds
- 2—Sell More Cars
- 3—Drive Cars Home

All of Which is Told in This Story About the Cleveland Show

By Ray W. Sherman

CLEVELAND, Jan. 24—The Cleveland show this year is what every other show should be. It is several thousand per cent better from a merchandising standpoint than the show that Cleveland held two years ago. The progress is remarkable.

As was stated last week in Motor World, there are three things of importance at the 1918 shows. They are:

- 1—Get the crowds.
- 2—Sell harder.
- 3—Drive cars from the factories.

All three of these things are being done. Cleveland is getting the crowds.

Tuesday night's paid admissions ran ahead of last year. Saturday night was only 9 per cent below last year. It is an even race every night, with the chance that this year's figures may beat last year's. The dealers, however, will be satisfied if there is no decrease.

As for more intensive salesmanship, there are evidences of it throughout the show. The exhibits are good merchandising exhibits. There are rugs, ferns, palms and art lamps everywhere, and it all merges beautifully into the spring-time decorative scheme that was put up by E. W. Campbell, of Boston, who is

this year doing several of the shows that are affiliated with the National Association of Automobile Show Managers.

And as to the drive-away proposition, there are dealers in Cleveland who have forgotten what a freight car looks like. The government truck road from Detroit to the eastern seaboard goes through Cleveland, and it is being used by the dealers here. The road is kept open all winter by shovelers, trucks and plows, and dealers are driving cars all the time so they may get in a supply before the snow goes and the roads turn to mush.

I—How Cleveland Got the Crowds

IT does a dealer's heart good to see the aisles of the Cleveland show thronged with the old-time crowds. People are looking, questioning and buying, just the same as in the other years. The dealer who may have been suffering from a wilting spine has been given a powerful object lesson. He is entirely cured of any idea that the public is not interested in cars this year.

The crowd is there, and it was good promotion work as much as anything else that got it there.

This promotion work, under the direction of Show Manager Fred H. Caley, began in ample time before the show date.

Getting Local Publicity

A puzzle contest was run in a Cleveland newspaper, in which cartoons concealed the name of some part of a car. The prizes were \$5, \$10, \$15, \$20 and \$25—open to children only—and the next fifty winners got free tickets to the show. This stimulated interest.

Then Herbert Buckman, Caley's assistant, made a tour of the Cleveland district and arranged with twenty papers

Series of Business Boosting Dinners Planned

CLEVELAND, Jan. 25.—So successful was the Hugh Chalmers dinner Monday, attended by 500 Ohio dealers, that the Cleveland dealers have planned a series of boost-business meetings, to be attended by the dealers in this territory.

The first one is scheduled for about March 1 and probably will be on a Saturday noon. It is planned to secure one dynamic speaker for each meeting, who can tell the story of why war-times demand good business and why it is every man's duty to have a stiff spine and an active cash register.

The Cleveland dealers have also considered co-operative business-boosting advertising, as a public stimulus.

in as many different Ohio small towns for special motor car editions Saturday or Sunday of the beginning of the show.

The show advertised that it would have a tractor display, which is of interest in this section at present. A Cleveland tractor is exhibited during show week on the sidewalk at Ninth Street and Euclid Avenue, in front of a bank.

Slides were shown in fifty moving picture theaters.

Free space was given to an army dental ambulance, and many people have been drawn to the show to see this exhibit. It is the first dental outfit to be accepted by the Government.

How Retail Stores Helped

A change was made in the musical program. There are more singers and fewer musicians, and the crowd each afternoon and evening enjoys thoroughly the vocal entertainment.

The Retail Merchants Board co-operated and twenty big stores used show poster stamps on their stationery for a

Cleveland's Good-Looking Show



THE RIS MOTOR CO.'S Reo exhibit shows how to handle the usual-sized show space. The old-time method is to set another car right in the middle in front—but this dealer didn't. See the effect he got. His business office is behind the car at the left



THE BAKER R & L CO. had a big space and didn't crowd it. Plenty of furniture and rugs were used. Directly behind the post between the two cars is a small business office



THE PEERLESS MOTOR CAR CO. had one of the best exhibits. The two lamps show up poorly in the picture and the bouquet on the far table can't be photographically shown in its real colors



Above — **THE CLEVELAND CADILLAC CO.** put great merchandising atmosphere into its exhibit. This view is from one end down behind the cars. It might be called the exhibit's inner circle or back yard. It is a fine place to talk business

Right, Above—**THE A. L. ENGLANDER MOTOR CO.** had lots of room at the back of its Hupmobile exhibit. The business office is under the lamp in the distance. Ordinarily the first car at the left sits farther in toward the soft davenport, having been pushed to the left to permit a better view. When where it belongs it acts as a sort of end door to the exhibit

THE CARRIS-FRANKLIN CO. showed how a small space should be handled. Carris had another exhibit car—but left it out and used the space for atmosphere and visitors. With another car he could have had little of either

THE WHITE CO. had a big space and handled it in a big way. The rug looks the value of some cars and fits well into the White line of goods. There is a chance to view every car to advantage

THE OHIO OLDSMOBILE CO. made its exhibit inviting to the show visitor. And just count over the very few pieces of furniture necessary to get this fine result



couple of weeks preceding the show. The show always helps the stores.

Thirty or forty of the stores in the downtown section have motor car displays in their windows. These consist generally of a tire or two decked out with ribbons. Kelly-Springfield loaned 47 tires to the stores for this purpose.

Few billboards were used, but every lamp post in the downtown section has a shield sign just below the lamp, advertising the show.

Street cars carried show advertising inside and out.

Every member of the Cleveland Automobile Club, which is closely related to the show company, received two tickets. There are 8000 members.

Every day is a special day. Saturday was opening day. The show runs two Sundays, beginning on Saturday and ending on Sunday, making nine days in all. Monday was dealers' day, and a big dinner of Ohio dealers was held Monday noon at the Hollenden Hotel, where Hugh Chalmers delivered a confidence-building address.

When the dinner was suggested "somebody said that it couldn't be done," but when the hotel counted the dinner tickets there were 427, and it is estimated that nearly 100 more people came in after the meal and heard Chalmers.

A dinner of all the dealers in a show territory is a mighty good idea for every show manager. It helps business, inspires the dealers and helps make the show a success. Manager Caley has sent to all the show managers in the United States a letter telling about this dinner.

Tuesday was Automobile Club Day. Wednesday was Aeronautic Day. One of the newspaper men swears he saw an aviator there, but, anyway, it made good publicity. Thursday—to-day—is Tractor Industry Day. The tractor people had in mind a dinner and a parade with a brass band, but gave up the idea because they could not get machines enough in line to make a worth-while showing.

Drive Cars Away in the Next 6 Weeks

DEALERS:

There seems no prospect of a let-up in the freight situation.

This means that you can expect few cars by freight unless your condition is exceptional.

If you are going to have cars to sell in April, May and June you must get them NOW.

The roads leading out from the Michigan factories are now covered with snow, but they are kept plowed out in several directions.

Cars can be driven away now. It will be far easier now than after the first thaw, about March 1.

DRIVE THEM AWAY NOW.

Read the story on page 16 of how the Ohio dealers are getting cars NOW.

Friday will be S. A. E. Day, in honor of the Cleveland Section of the Society of Automotive Engineers. Saturday will be Good Roads Day, a subject dear to the heart of every Ohioan. Sunday will be closing day.

Some of these days are purely nominal—but they all make good advertising copy, and advertising and publicity get the crowds.

Uniformed Men Free

Any man in his country's uniform paid no admission, and quite a few soldiers wandered in and out at will.

Mats and electros without limit were supplied to the country newspapers. A stock motor car page head was furnished

to all that would use it. The motor car sections ran from one to 24 pages in the country papers.

The publicity featured E. W. Campbell of Boston, who was cartooned as "the man who brought spring-time to Cleveland." His decorations have made a hit, and saved the show company several thousand dollars over the prices of other years. The newspapers have given good support.

All of these things are details, but the sum of the details has resulted in a big piece of good show promotion. It has brought the crowd. The management did just what every American should do. It worked a little harder than usual.

II—How Cleveland Made the Show Pay

THE man who buys space in a show and then sits down and watches the crowd file by has bought a gold brick—with very thin plating on the outside.

Above all years, this is the year when the dealer must go into the show as a merchandiser—or else begin now to get the exit sign located so he can go out quietly.

Money spent on a show is generally conceded to be a good investment, but under present conditions the man who isn't more efficient than he was last year isn't playing his part in the game. He isn't doing his bit. This means that the dealer's show work must be more intensive. The dealer must organize

himself for getting big value out of the show.

There are good examples in the Cleveland show of how it can be done.

Should Be Show Exhibit

As a starter, a show exhibit should look like a show exhibit and not like a garage scene. The public can see a garage scene for nothing. It pays money to see a show—and should be given its money's worth.

One of the flaws in Cleveland's shows a couple of years ago was the lack of show atmosphere and the crowded condition. This year it has all gone—almost. Before the show the association sent a letter to all exhibitors asking them to

slip in a few rugs, palms, ferns, tables and chairs, and to put in an art lamp if possible.

The result is that there is only ONE exhibit that hasn't done something to give show atmosphere—and the car is made in Cleveland. Out of the 32 principal exhibits 31 have rugs; 10 have art lamps; nearly all have floral decorations. Furthermore, nobody has overdone the job. It is a real merchandising show. It has the atmosphere that is the right of the motor car.

Volumes could be written on this feature—but the preceding paragraph tells a bookful.

Making the show look right is the first step. Giving plenty of room is an-

other. The aisles are necessarily rather narrow in the Cleveland show because the space in the Wigmore Coliseum is entirely inadequate, but the narrow aisles have been compensated for by omitting divisions between exhibits and leaving it so the crowd can go from one exhibit to the other. It works well.

The next step is in handling the show sales work. It is done with varying degrees of merit, but telling how two do it will illustrate. The two are the Neighbors Motor Co., Dodge, with M. L. Bridgman as general manager, and the Ohio Buick Co., with C. W. Hunt vice-president and general sales manager. Both will sell a couple of dozen cars at the show each.

Let us first take up the Neighbors motor plan. When the space is allotted Bridgman maps out the exhibit. The cars are placed in dummy form, the furniture is selected and arranged and a big chart of the space is hung on the sales office wall. A copy is given to each salesman. At the every-morning sales meetings the 16 salesmen are drilled in the location of cars with the result that when the show opens a salesman can stand blindfolded in the space and point at any model.

Drilling the Salesmen

At these sales meetings the men are drilled on "uniformity of sales talk." They are taught that the five chief points are: 1, Appearance; 2, Comfort; 3, Performance; 4, Price; 5, Service. The object is that every man shall tell the same story. If a prospect talks with more than one salesman the Dodge story is always the same—and the selling points are thereby made doubly impressive.

The order of these points is somewhat standardized, but each salesman is instructed to emphasize the points that seem best to fit the prospect.

The salesmen know why certain models are displayed. They are fully prepared beforehand.

They are also given object lessons in how to act and how not to act in a show exhibit. The sales manager is anything but a pretty object as he drapes himself in negative illustration over a runningboard, but the point gets home. The result is that the salesmen are a business-like, straight-backed group of men.

Illustrations are also made on not making too many gestures, being impressive in speaking and letting the prospect sit in the car and appreciate the interior arrangements. A salesman must never leave a prospect no matter who calls. There is a stenographer to answer telephones and operate the prospect files, which are moved to the show for the week.

How Tickets Were Distributed

Before the show 2500 tickets were sent to a selected list. The master file covers live, semi-alive and dead prospects, and if a salesman turns in a prospect at the show the file immediately shows whether the name has been listed previously.

A salesman is protected for 30 days

Kansas City to Spend \$10,000 to Boost Business

CLEVELAND, Jan. 25.—The Kansas City Motor Car Dealers' Association is to spend \$10,000 in blanket newspaper advertising between now and the date its show opens, Feb. 9. This advertising will not be show advertising but will center around the essential character of the motor car and the need for good business if the war is to be successful.

The plan was explained here last evening to the directors of the Cleveland association at a dinner given in honor of Kansas City's secretary, who is also president of the National Association of Automobile Show Managers.

Peake said without doubt Kansas City would also hold on Monday of its show a big dealers' business-boosting dinner such as was addressed here Monday by Hugh Chalmers.

on a prospect. If the salesman doesn't do something with it at least once a month it is any man's prospect. But in "protected" cases the commission goes to the salesman whose prospect it is. This sometimes causes a man to make a sale and lose all the commission—but it averages up about even.

At the show two cars are kept for carrying special prospects to and from their homes. Each car—at the request of prospects—makes 9 or 10 trips a day.

A schedule is made out, showing what hours each man is to be on duty. At least four men are always on duty. The stenographer operates a board on which are the names of the salesmen showing who is "in" and "out." This registry is made by turning over a round tag that hangs on a hook opposite the salesman's name. This board also enables prospects to ask for salesmen whose names the prospects may have forgotten.

And There's a Floor Manager

A floor manager is in charge at all times. His duty is to see that every caller gets attention and to help out in emergencies. He is not expected to play the part of general salesman.

Every morning at 8:30 a meeting is held at the salesroom. Show work is discussed.

One point of emphasis is "get the prospect into the salesroom whenever possible."

A uniformed porter is on duty in the exhibit. He makes himself very useful.

Each salesman wears on his left top coat pocket a felt ribbon in orange and black with the name of the car. This distinguishes him from visitors. The salesmen wear no hats and do not smoke.

As soon as the show is ended the prospects are gone over and a daily work sheet is given each man. This tells him each morning whom he is supposed to call on. As he reports the ticklers are moved ahead and the names appear on future daily work sheets.

This plan gets results from the show, both in sales during the show and sales in the weeks and months that follow.

Buick Has Good Plan

And now let us take up the handling of show work by C. W. Hunt, the Buick sales manager.

As soon as one show is over Hunt opens a "show folder" and in it puts every idea that comes up on the subject.

About two months before the show a hunt is made for a souvenir. This year it is a little cheap top that show visitors have been spinning all week on hotel dinner plates and other convenient places. It bears the Buick name.

Advertising in the newspapers is given a special show tone but little additional space is used.

As to the souvenirs, they are not handed out along the aisle promiscuously. As each man gives a top away he is directed to make an impression upon the recipient. This is done by spinning it on the man's hand, dropping it in his pocket, or performing some other unconventional but not ridiculous act.

Regular Sales Meetings

Sales meetings are held regularly and show topics are treated at show time.

Each man is limited to 100 prospects and he is required to take care of them. No tickets are mailed to the salesmen's prospects, but no limit is placed on the number that is given away.

Each salesman goes out to call on his prospects the week before the show and gives the man tickets, if the prospect wants them. This establishes a personal relation between the prospect and the salesman and refreshes the salesman's mind regarding the prospect. Then, if the prospect attends the show, the salesman is quite sure to know him.

Run on Schedule

Having gotten ready for the show a schedule is arranged and the work begins. A floor manager has charge and sees to it that visitors are not neglected and the salesmen do not spend too long a time in one conversation.

Each salesman is required to turn in complete data on every prospect. He is above all required to turn in some fact that, when seen later on the prospect card, will cause the salesman to remember the prospect. It may enable a salesman, when later calling on the prospect, to impress himself on the prospect by saying: "— we were talking at the show about whether you preferred a blue or a green body."

This data also covers such facts as who introduced the prospect, whether his wife or daughter was with him, what the daughter's name is, etc. This plan was adopted because it was found that the salesmen often did not know the

prospects when seen after the first meeting.

A girl is in charge of the telephone and exhibit routine.

In connection with the show work the salesmen this year were instructed to SMILE. They were shown how their

optimism and cheerfulness may help the whole motor car industry.

They were also instructed on the advisability of not letting anyone sit too long in a car, and were shown how to make a woman get out of a car without offending her.

After the show the prospects secured are gone after in hot fashion. The work is followed up closely—all of which helps the dealer cash in on his show effort and expense. And the salesmen say they like these ideas because it helps them make more money.

III—How Cleveland Dealers Are Getting Cars

The Drive-Away

ONE Cleveland distributor sells 10 per cent of the output of a big Michigan factory and last year drove half his cars overland. This means that 5 per cent of this factory's output never was inside a freight car. The percentage is, of course, larger because other dealers also drove cars away.

Dealers are said to be driving cars to Florida and all the other Southern States. Some drive to Cincinnati, where the restricted zone ends, and then ship.

From Detroit to Cleveland is the road over which the army trucks come east, and this road is being kept open this winter. The dealers are driving cars over it every day. It is the only way they can get them. Furthermore, the snowy road is passable, but about March 1, when the thaw comes, the Michigan roads will be impassable, wherefore the dealers are driving cars NOW. Other dealers in other sections should take notice. By March 1 cars probably can't be driven out of Michigan. There will be a rest period of nearly two months, and dealers who want cars in the spring must drive them NOW.

C. H. King, of the Buick factory, said Tuesday night at the Ohio-Buick Co.'s dinner that the factory sent one road-breaking crew out Monday and a second crew Tuesday in an effort to keep open the roads out of Flint. He said there seems no prospect of better shipping conditions and that probably nearly all the Michigan cars sold this year will be driven away.

Must Drive Cars Home

Factory production, he stated, depends on the dealers' taking the cars away—and there is no way except the "drive-away." This means that it is up to the dealers how many cars their factories will build. He urged dealers to DRIVE ALL THEY CAN IN THE NEXT SIX WEEKS.

King said he did not believe there would be enough cars this year to supply the demand that would develop this spring. General conditions are above the average.

George G. G. Peckham, the proprietor of the Ohio-Buick Co., said he drove cars until March 7 last year. Sales Manager

C. W. Hunt urged dealers to drive all they could, and added that there seemed no doubt that any dealer could easily dispose of any surplus to other dealers.

The Neighbors Motor Co. is driving Dodges regular. Mechanics are paid a flat price of \$20 for every car they bring from Detroit, the men paying all road expenses. When not on drive-aways they get regular shop pay.

The men can leave Cleveland one evening by train and be back by the next evening with the cars. Sometimes they arrive as early as 2 p.m. Eight men are regularly engaged in this work. The drive-away cost is \$6 to \$10 above railroad freight and the added cost is absorbed by the dealer.

What Neighbors Has Done

Neighbors has leased for the winter part of the D & C steamship dock in Detroit and has filled it with 150 cars. Such of those as are not driven away will be shipped by boat when the lake opens.

Small charges for damaged cars are made if the men are proved to be negli-

gent. Damage is, however, infrequent, as the men are picked drivers and know the roads.

Recently a squad of Iowa drivers were unable to go west with cars so were engaged to drive cars from Detroit to Cleveland until the western roads were passable. In 6 weeks Neighbors has driven 150 cars. There was one bad week when there was no driving. Neighbors has 700 cars in Cleveland warehouses.

Last winter Overlands were driven to Cleveland in large numbers. M. L. Bridgman, at that time Overland manager, also found six idle flat cars in an Ohio stone quarry and arranged with the Lake Shore Electric Railroad to carry Overlands. Six carloads were brought in every night at a flat charge of \$15 a car. The cars had to be unloaded 7 miles out of town because the loads overhung too much to be brought further into town.

Some of the flat cars carried Knight motors back to Toledo, but generally they went empty.

Shipping by Electrics

There seems to be a big possibility in electric shipment of cars provided the electric roads can arrange some form of transfer. The west is covered with electric lines, some of which run regular sleeping cars. All that is required is a supply of flat cars and some form of work car to do the towing.

I. Van Baalen, of Youngstown, president of the dealers' association in that city, says he has found that the drive-away adds a good sales point. He says some of his prospects request cars that have been driven from the factory, knowing that such cars have been given a thorough test. He said dealers should make this one of their 1918 sales points.

Freight from the east to the west is not so bad as in the opposite direction, which means that dealers here in such eastern cars as the Franklin can get their cars usually by freight.

But dealers in Michigan and Ohio cars are paying little attention to freight. They have stacked up against the traffic obstacle and are meeting it in a truly aggressive automobile way by providing their own transportation.

Business Good in Ohio

CLEVELAND, Jan. 25 — Prospects look good for car sales in Ohio this year. This is a state of many industries and big war orders. Everybody is making money. Mechanics who used to drive used Fords are casting covetous eyes at better cars, and the dealers are looking forward to a good year.

The dealers have had good business during recent months. At the Ohio Buick dinner Leo J. Collier, of the Mahoning Buick Co., Youngstown, was awarded a watch for winning a dealer contest that made the Ohio Buick business in November \$17,900 better and in December \$12,000 better than in the same months of 1916. January, it is estimated, will be better by 33 1/3 per cent.

Motor World Window Service



Fashion Camera Studio

In setting up this "Hindview Auto Mirror Display" two frames are used, 20 x 40 in., one on each side. In each frame a sign is suspended from the top, and the back of the frames are covered with crêpe paper. The center unit in the back of the window is done by taking small packing cases and building them up to 5 ft. in height, placing a half round board on top and covering it with crêpe paper, then attaching mirrors on top. Velour is draped from the bottom of the half circle to the floor.

The front unit, showing the mirror for the truck and one for the closed car, with small

How to Trim This Window

signs attached, is a small box 6 in. square and 18 in. in height. Two mirrors are attached to the front surface and one in the back. Velour is puffed from the bottom of this unit so as to come out on both sides of the sign. Small booklets are placed here and there along with the bushings and sockets. The booklets are supplied by the Kales Stamping Co., Detroit, maker of the goods.

A small sign at the front of the window,

reading "Fits Any Car," \$2 to \$4.75," is 11 x 14 in. The two signs in frames are 16 x 24 in. The small sign at the center of the window on the half circle is 7 x 16 in., and the small ones reading "For Truck," "For Closed Car," are 3 in. square.

Velour was used for puffing and draping on the back unit. If velour is not on hand, cheesecloth, sateen or any other material available may be substituted.

If two picture frames are not available frames can be easily made. Cut four pieces of 2 x 1/4 in. pine and nail them together. Crêpe paper makes a good finish.

Send Out These Two Letters

SEND THE FIRST ONE the Friday before the display is set up and mail the other Monday night of the following week. If you put no handwriting on these, have them all done by a printer and do not seal the envelope, but tuck the flap in, they can be mailed for one cent each.

Letter No. 1

WHY does a railway train have a brakeman at the rear end? It is to watch out behind and protect the train from rear-end injury.

The brakeman is the eyes in the back of the engineer's head.

When you are driving your car who is your brakeman?

Who protects you when you are about to slow down?

Who watches out for traffic behind when you are about to turn a corner?

Sometimes the man behind sees your extended arm—if he is watchful—but even that precaution is difficult in winter when you are often shut in to keep out the cold.

Why not have a pair of eyes in the back of your head and do your own watching out behind? One look at the right time may save you a lot of money and trouble.

The eyes in the back of the driver's head are the Hindview Auto Mirror. There will be a big display of them in our windows at 8 o'clock Monday morning.

It will be to your advantage to investigate several of these and see which one best suits your car. We have them for open and inclosed cars and for trucks.

Letter No. 2

YOU are about to turn a corner in your car. You "guess" the man behind has seen your signal—provided you can get your arm out—and is going to give you a clear way.

But is he?

If you had eyes in the back of your head you would know just what the man behind was doing. Furthermore, you would know whether there was a man there or not. Sometimes you can't tell whether there is a car back of you.

And if you had these eyes in the back of your head and gave ONE look at the RIGHT time might it not save you a lot of money and trouble?

What would such a pair of eyes be worth?

Would they be worth \$1 each?

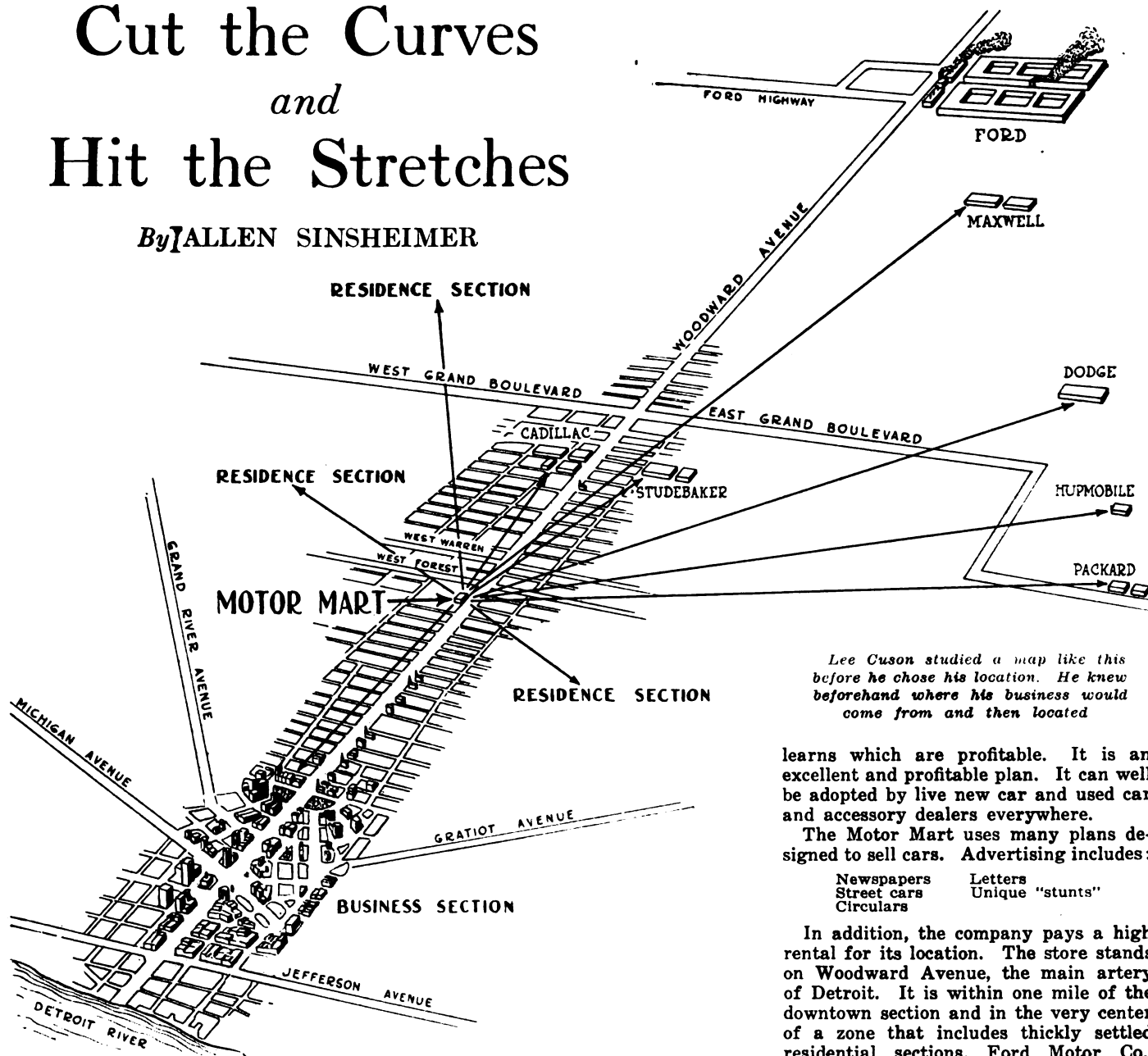
If they would you may inspect them in our window in the shape of a display of Hindview Auto Mirrors, which, by the way, is one of the best window displays we have had in some time. It was laid out by an expert in New York.

Make sure there is no trouble ahead of you by KNOWING what is behind you.

Come and see this display of "eyes in the back of your head."

Cut the Curves and Hit the Stretches

By ALLEN SINSHEIMER



Lee Cuson studied a map like this before he chose his location. He knew beforehand where his business would come from and then located

learns which are profitable. It is an excellent and profitable plan. It can well be adopted by live new car and used car and accessory dealers everywhere.

The Motor Mart uses many plans designed to sell cars. Advertising includes:

Newspapers	Letters
Street cars	Unique "stunts"
Circulars	

In addition, the company pays a high rental for its location. The store stands on Woodward Avenue, the main artery of Detroit. It is within one mile of the downtown section and in the very center of a zone that includes thickly settled residential sections, Ford Motor Co., Maxwell, Cadillac, Packard, Hupp, and many other large plants employing hundreds of thousands of workers.

Two cross-town street car lines operate within two blocks of the store. The downtown shoppers drive by street car and automobile over Woodward Avenue passing the Motor Mart to and from the retail district. Workers in the many plants travel over Woodward and the nearby cross-town lines to and from work, passing the Motor Mart.

Business men, bankers and professional men going to their offices and to their homes pass the Motor Mart. And at night when the north section of the city seeks downtown amusement it passes the Motor Mart. Day and night thousands of people pass this store. Its location is particularly good.

By day Cuson, proprietor of the Motor Mart, places many cars outside of the store next to it, in a large lot he rents for the purpose. By night he employs

THE flag drops—the race is on! See the leader. Look how he cuts the curves. Behold how he hits the inside stretch. Never wasting time or space—conserving every foot and second—he rides to victory.

There, you have the secret of success—in business or in sport. Conservation—no waste. And the dealer who cuts the curves of Foolish Expenditures and hits the inside stretch of Wise Effort also rides to success.

For example—there are dealers who attempt to build huge concerns. They advertise in street cars, newspapers, circulars and other ways. They arrange attractive window displays. They pay large rent for prominent locations. They spend much money in many ways endeavoring to attract the buyers. And when business is good, they attribute the

success to their general scheme of business and sit back contentedly—and wastefully.

When business is good there is a reason. It may be all of the things you are doing—and it may be but one or two of your schemes. If it is one or two only, **YOU ARE WASTING MONEY** on the others—you are not cutting the curves—you are not hitting the stretches. And though you may be successful, you may also be unsuccessful—for no business can stand a drain larger than its profits.

TEST YOUR SALES METHODS. Learn which are profitable—know the assets and the liabilities in your business building efforts. These columns have previously told of the Motor Mart in Detroit where 170 used cars are sold per month. Here, to-day, you read how the Motor Mart tests its sales methods and

hundreds of small automobile light bulbs over his lot and several powerful electric lights over the front entrance of his store.

In his advertising, he is particularly original. Newspaper advertisements, street car signs and circulars all bear a line of thought that is different. And everyone in Detroit knows the expression "Ask the man in the white hat," which he inaugurated when he placed white hats on his salesmen so they could be distinguished by prospective buyers.

Well—recently Cuson sat down and figured the costs of all of his different sales methods. He totaled the advertising, the sales meetings, the salesmen's salaries and commissions, the rent for his store and all the other details. It made a very comfortable sum—too large, he thought, in some respects. And he has decided to reduce on those that are unprofitable—and to expand and expand on those that pull.

This is how he is determining which are profitable and which are not: On a small printing outfit which he owns and operates in his office he made up many postal cards like the ones shown here.

He mailed these to people who have purchased cars from him in the past year. More than 500 cards were mailed. And 220 returned. Here is the result:

	No.	%
Attracted by display room.....	102	47
Attracted by newspaper ads.....	80	35
Attracted by friends' recommendations.....	22	10
Miscellaneous	16	8

Of the newspaper advertisement at-

F. E. Maisonville, Adv. Mgr.,
The Motor Mart.
851 Woodward Ave.
Detroit, Mich.

Dear Mr. Maisonville:—

I take pleasure in sending the following information;

I came to the Motor Mart through—

- (a) Newspaper advertising
- (b) Acquaintance with a salesman
- (c) Acquaintance with an employee, not a salesman
- (d) On recommendation of friends
- (e) Because I had previously purchased from you.
- (f) By passing your display room.

I first read your Used Car

advertising in the—

- (a) Detroit News
- (b) Detroit Free Press
- (c) Detroit Journal

I purchased my car from the

Motor Mart because of—

- (a) Confidence in the house
- (b) I was attracted by a specific car advertised
- (c) Further remarks.

Yours very truly.

This is the kind of card Cuson sent out to his customers to find out how effective his advertising was

tractions which numbered 80 there were:

Attracted by evening paper ads.....	56
Attracted by morning paper ads.....	24
Attracted by ads in certain cars.....	62

All of which proves that:

The best Motor Mart business magnet

is the window display and store location.

The second best business magnet is the newspaper advertising, which is always in the classified columns and from 1 inch to 5 inches.

The best newspaper advertising is in the evening.

Advertising in specified cars pulls the buyers.

That many other plans costing much money are not paying for themselves. And as a result Cuson will:

1. Improve his store and window display and lighting effects.
2. Add new rugs and carpeting and repaint.
3. Devote most of his advertising appropriations to evening newspapers.
4. Frequently advertise some one car.
5. Cut his advertising appropriations for morning papers, circulars and other sales methods to a minimum.

It is a good plan. Other dealers can easily follow the idea, sending cards to their customers and learning just what they do that makes good business. And they can cut the cost of the unnecessary plans—and EXPAND and EXPEND ON THOSE THAT ARE WORTH WHILE. That will be cutting the curves of foolish expenditures and hitting the stretches of wise effort.

Remember always that there are others in every race besides the winner—there are also the losers—those who do not cut the curves and hit the inside stretches. And it is up to the dealer whether he will be a winner or a loser—he alone can decide—he alone can DETERMINE to drive to victory.

Minneapolis Tire Dealers to Train Vulcanizers for Army

MINNEAPOLIS, Jan. 25—Plans for training vulcanizers free for the Government were endorsed by the Minneapolis Tire Dealers' Association at its annual meeting. The association will train 20 to 25 men at a time, or three classes of six weeks each until May 15, and after that date classes of 15 men each.

A general course is to be decided on. The men will be distributed among the various tire shops, each shop forman to be responsible for the training to a general committee. The committee will make personal inspection of the men at work once a week and will also have a joint session once a week with oral or written examination in co-operation with M. R. Bass of the Dunwoody Institute.

"Our association hopes other trades will become interested in similar patriotic work," said Secretary-Treasurer H. F. Lundberg. Constitution and by-laws were adopted at the meeting. The other officers elected are: President, Fred Weil, and vice-president, W. D. Scott.

Changes in Minneapolis Row

MINNEAPOLIS, Jan. 25—Mid-winter changes are being made in the industry. The Oneida Motor Truck Co. of Minnesota has been incorporated at \$10,000 to handle products of the Oneida Motor Truck Co., Green Bay, Wis. Headquar-

ters are at 1626 Harmon Place, Minneapolis. F. E. Burrall is president, L. P. Fortin is vice-president, and J. P. Neugent is secretary-treasurer. All are of Green Bay, as well as S. H. Cady, one of the incorporators.

The Minnehaha Oil Co., Hopkins, a suburb, is incorporated at \$40,000. There are several Minneapolis stockholders. Henry Perbix of Hopkins is president, Dr. James Blake of Hopkins is vice-president, and E. D. Stowe of Minneapolis is secretary-treasurer.

H. S. Christian's Ford agency and station has removed to a new building at 1417 Hennepin Avenue.

The Yellow Cab Co. has opened a new office and waiting station at 921 Hennepin Avenue.

H. J. Mich & Co., distributing the Lexington, have moved to the former Maxwell retail quarters at 909 Hennepin Avenue.

Stewart to Make Wire Wheels for Government Airplanes

INDIANAPOLIS, IND., Jan. 25—The Stewart Wire Wheel Corporation of Frankfort, Ind., has signed a Government contract to manufacture 4500 wire wheels for aeroplanes. Approximately \$45,000 is involved in the order. The company expects to devote all of its time to Government work until the contract is filled.

Quincy Dealers Put Business on Cash Basis

QUINCY, ILL., Jan. 25—All the dealers, garages and electric service stations have signed an agreement to put all supply and repair business on a cash basis. They are notifying the public of the agreement by using large space in the local newspapers. Repair prices are lower in this city than in many of the surrounding towns and the move is made to enable the dealers to do away with accounting, collecting bad accounts, cost of money to carry accounts and other items.

The automobile show at the Armory has been postponed to Feb. 20 to 23. Practically all the space in the big building has been taken and the main reason for postponing the show was the inability of some of the big companies to get their exhibits here on time. A musical program will be held in connection with the show, and B. L. Bartlett, the show manager, is making preparations for a record-breaking attendance, as this is the first show held in this territory for several years.

Matlack Now with Globe

NEW YORK, Jan. 25—J. C. Matlack, who recently resigned as secretary and general manager of the Ajax Rubber Co., has become president and general manager of the Globe Rubber Tire Mfg. Co., 1851 Broadway.

Reo Four Changes Include New Body

**Wheelbase and Price Increased—
A Few Refinements Made in
Engineering Details**

NEW YORK, Jan. 21—Along with a new body and a new price, the Reo Four has a few refinements in engineering detail. The chassis has been increased in wheelbase by 5 in. and the Hotchkiss drive adopted. The former model had a torque tube drive, but this has now been abandoned in favor of the Hotchkiss arrangement with underslung semi-elliptic rear springs. There is also a new irreversible steering gear.

The new wheelbase is 120 in. as against 115. To take care of this the structure has been stiffened throughout and in addition the crankshaft has been increased $\frac{1}{2}$ in. in diameter and is fitted with counterweights. Other than this the engine remains the same and the remainder of the driving units are also unchanged.

A price increase of \$240 has been made, the price since Jan. 1 being \$1,225. The increase, however, is not merely on account of manufacturing conditions, but is largely due to the fact that the car is larger, roomier and has a much better and finer appearing body. The body has now a center cowl effect, sloping wind-

in the states have not seen the new series R car. The production on this car is rapidly speeding up and at present about 65 cars per day are being manufactured. It is reported on reliable authority that the Hupp Motor Car Co. is working on special work for the Government.

Air Inspectors Have Club

DETROIT, Jan. 21—The Detroit Aircraft Inspectors Club, composed of the engineers who construct and inspect airplanes in this city, has been organized for more complete co-operation in the work of the members. Captain James Haeslett, who has charge of the government aircraft equipment division in the city, and Captain Hotchkiss, of the Washington division of aircraft equipment, addressed the members at their first meeting. The officers elected follow: Lieutenant E. T. Jones, president; George Gray, vice-president; A. T. Davidson, secretary-treasurer. Monthly meetings are scheduled. It is stated that the first of the Detroit-built war planes was successfully demonstrated during the past week.

Wisconsin Ford Dealers Organize

APPLETON, WIS., Jan. 21—Ford dealers of northeastern Wisconsin organized the Fox River Ford Dealers' Association at a meeting held in Appleton, Wis. W. C. Dicke, Manitowoc, Wis., was elected president and H. M. Bradford, Appleton, secretary and treasurer.

Argentine Industry Strengthened by War

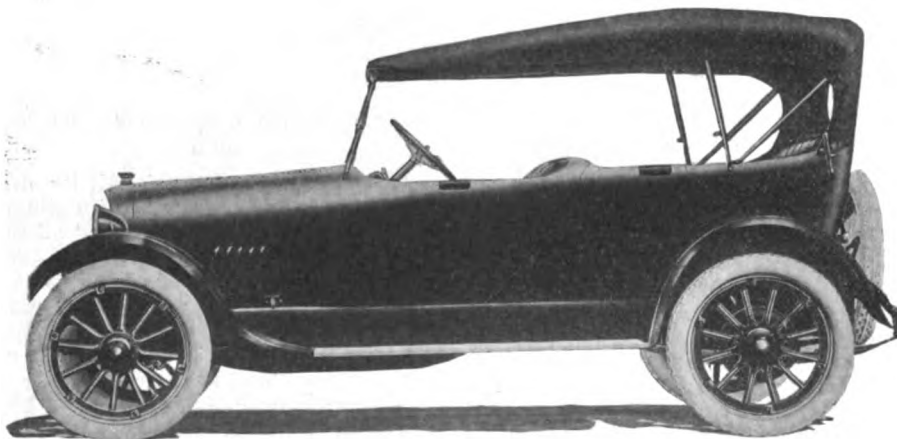
**More Motor Apparatus Needed to
Make Up for Farm Labor
Shortage**

BUENOS AIRES, ARGENTINA, Nov. 20—With Argentine crops expected to establish a new record for the coming summer, mid-summer here being January, the sale of automobiles to the Argentine farmer should show a great increase over previous years. The farmer still continues the great center of sales in Argentina, although in the streets of Buenos Aires the number of American cars is increasing. The war has strengthened the motor car industry in Argentina, due to the shortage of farm labor and the consequent necessity for motor apparatus to take up this shortage.

During the months of October and November, and during the winter months of June, July and August, the sale of automobiles was slow and in many places entirely stagnant, due to general unrest, as well as the series of railroad and other strikes, which greatly interfered with the business of the country.

An example of how American methods of merchandising automobiles in Argentina is taking hold was evidenced by the convention of Overland dealers, which was held at the Plaza Hotel here. It was the first South American Overland convention and demonstrated that the value of such conventions exists in South America as well as in North America. Two or three of the other leading automobile concerns in North America, who have strong organizations in Argentina, have held similar conventions. The spirit of co-operating in automobile sales has taken hold of South America. This was indicated by the fact that from Uruguay came a delegation of five Overland dealers to attend the Buenos Aires convention which was held on Nov. 19 and 20.

In addition to holding the convention proper at the Plaza Hotel, the dealers made a trip by motor from the Overland agency owned by P. A. Hardcastle to the Tigre, which is a summer outing place a few miles from Buenos Aires.



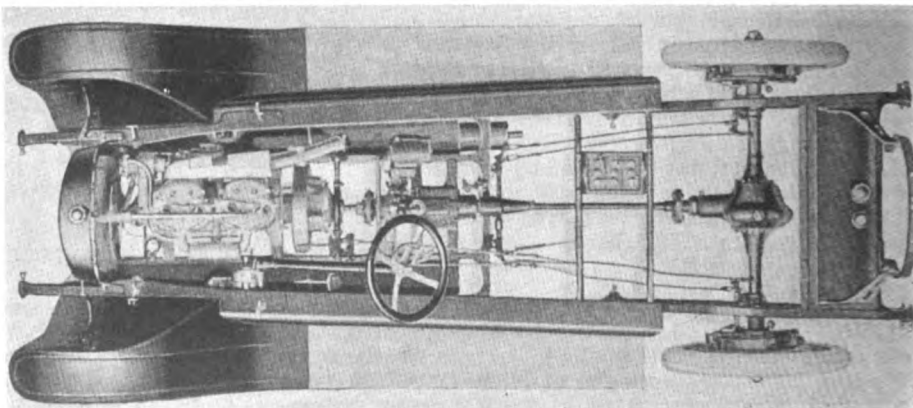
The four-cylinder Reo has a newly designed body which is somewhat lower, due to the use of a new rear spring suspension

shield, an improved top with only two bows and a modified gypsy rear, steering column control, rear gasoline tank, instead of under-seat type.

Hupp Has Good Foreign Sales

DETROIT, Jan. 21—The Hupp Motor Car Co. reports exceptionally good export demand from the Latin countries. It is stated that at present the active demand from South Africa would take 100 cars on immediate order and a factory man has been recently taken by the South African dealer to install a service and sales system. The demand from South America and Porto Rico is also good.

At present the production is behind the demand and over 100 Hupmobile dealers



The Reo chassis has been slightly altered and is 5 in. longer. The torque tube has been eliminated

First Argentina Convention of Overland Dealers



In the background is the Overland agency in Buenos Aires. The line-up shows the start of the party for the Tigre, a famous outing place



This is the party after arrival at the Tigre. The insert shows P. A. Hardcastle (left) and E. Rochette (right)



The convention was held at the Plaza Hotel, Buenos Aires, and this view shows the Overland dealers gathered for lunch, Nov. 19, 1917



This is the same group of dealers seated for "tea" at the Tigre Hotel, which is one of the fashionable and famous outing places



Here is a group of the delegates to the convention, which was spread over two days, Nov. 19-20, the first of its kind



These gentlemen are the Uruguayan delegation to the Overland convention, who came many miles by motor car to attend

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

Who Gets Commission?

Editor Motor World: In 1916 we contracted with another dealer in our territory to handle Hudson cars through us, giving him exclusive selling rights in a designated section of our territory only. At the end of the year we found it desirable to cancel this contract. This dealer, at the time we cancelled contract, had one new Hudson in stock which he has since sold outside, not only his own territory but also my territory. We have in consequence been compelled to pay a 10 per cent encroachment commission to the dealer in whose territory this car was sold but have been unable to collect this from our subdealer. Did this obligation to sell Hudson cars only in a certain prescribed territory become void when we cancelled his contract? We stand a direct loss of 10 per cent in this instance through no fault of our own and would appreciate your advice as to whether or not we stand any chance through law of making the offending dealer pay.—C. R. T., Boonton, N. J.

Answer—It is, of course, impossible to satisfactorily answer a question of this kind when one is unfamiliar with the contract between agent and manufacturer and the contract between agent and subdealer.

Your rights all depend on your contract. If it is properly drawn the subdealer will be liable for your loss. If the question of his selling cars after cancellation is ignored in the contract, you will practically have to stand the loss yourself. Demand that he compensate you for the loss caused by him and if he refuses take all your contracts, correspondence, etc., to your local counsel and have him advise you regarding the desirability of suit.

Up to Distributer

Editor Motor World: I sold a new car which made a little noise in the rear end. It kept getting worse and he did not like it on a new car; neither did I, so I told him if he would drive to the distributing station, where I get my cars and have a contract, they would repair and fix it up for him. I furnished the gas for him to drive the car to this station—about 66 miles. They told him that the gears in the differential were not the right gears. They put in a new drive gear and drive pinion and sent me a bill for \$17.22 for these parts and labor on the car. What I would like to know is, do I have to stand for this or not? Can I help it

if the wrong gears were put in the car? I once before had a car with the same trouble and wrote the distributing station as to what they would do about it. They told me that they would fix it free of charge but I sold the car to another dealer and he had it fixed.—Lorenze Auto Co., Britt, Iowa.

Answer—It certainly would be poor business policy on the part of the distributor to charge you for the gears under these circumstances.

If you still have the letter in which they offered to remedy this kind of trouble without cost to you, it might be valuable as evidence of what obligation they were under to make repairs without charges. Was there no agreement or conversation at the time you delivered the car to them for repairs? If there was none and you no longer have the letter, your contract will govern your relation with the distributor, and any clauses relating to defective parts will, of course, be binding on both parties.

Write and make your position clear to the distributor before you think of paying the bill. The amount involved is considered too small usually to make it worth while to institute suit.

When Legislatures Convene

During the year 1918 the legislatures of the various States will convene as follows:

Georgia.....	June 27
Kentucky	January
Louisiana	May
Maryland	January
Massachusetts	January 3
Mississippi	January
New Jersey.....	January 9
New York.....	January 3
Rhode Island	January 2
South Carolina	January 9
Virginia	January

I shall be glad to hear from individual dealers or trade associations in any of these States that are desirous of submitting a new garageman's lien law, and I will be glad to aid and assist them in every way possible.

Sending Goods C. O. D.

Although ordinarily when a dealer sells goods C.O.D. he is responsible if they are lost or stolen before being delivered to his customer because he owns the goods until they are delivered and paid for, there is no such liability on

this part if the customer pays for them in advance and directs that they be shipped to him by express. In a case of this kind the loss falls on the buyer because he is the owner of the goods as soon as they are delivered to the express company and the dealer naturally does not have to refund the money or replace the goods, as it is up to the customer to seek satisfaction from the express company.

Frozen Cars

Editor Motor World: If a car is frozen while being stored in a garage must the garage keeper make good? I do not believe he must take the water out of the radiators of cars stored with him or put alcohol or anti-freeze in them. Will you explain when a garageman is responsible?—J. V. B., New York, N. Y.

Answer—If an unheated garage were furnished per agreement the garageman, of course, would not be responsible for a frozen radiator on a customer's car.

Where he agrees to furnish a heated garage, however, he may be responsible unless he can show he made an honest earnest effort to procure coal and could not get it.

If the freezing were caused by something beyond the garageman's control after he has taken all proper precaution he is not responsible.

I should say that a garageman is not under a duty to put alcohol or anti-freeze in a radiator or to drain the water off, as there might be a non-freezing solution in the car. Then, too, in order to properly drain the radiator, he would have to start the engine—something he has no authority to do.

Lien Law Question

Editor Motor World: Please advise me if the Garage Lien Law would have any effect on a bill that was due before the Lien law went into effect.—Green Valley Garage, Green Valley, Ill.

Answer—The new Illinois Lien law was approved June 21, 1917. When a law is passed it will not be considered retroactive, that is to refer back to the time before it was passed, unless that fact is expressly set out. There is no such provision in the new Illinois Lien law and so far as I can see only liens arising on the storage, repair or furnishing of materials since June 21, 1917, will be covered and included in the new act.

A Department of
BETTER MECHANICS
No. 54

How to Build a Service Car

By S. T. Williams

A SERVICE car bears the same relation to the service station as does an ambulance to a hospital. It must carry parts and equipment sufficient to render first aid to any disabled car, enabling it to come home under its own power; or if this is impossible, means

must be provided to tow the disabled car to the service station.

In addition to the ability to give actual roadside service, the service car should be distinctive. It is the traveling representative of the service station, and should impress upon the public that

quick, clean and efficient service is given. Hence the service car must be designed to meet two requirements—first, utility, and second, attractive appearance.

A police patrol type body seems best to meet these requirements. It may readily be built on any passenger car chassis back of the driver's seat; is distinctive, and offers a large carrying capacity both for tools or workmen.

In Fig. 1 a side view of a representative body of this type is shown. In Fig. 2 are the detail drawings of this body. Any dealer can construct a body of this type by substituting the dimensions from the table for the lettered dimensions of Fig. 2. Though the dimensions for all cars are not given—this being obviously impossible—the approximate dimensions may be obtained by choosing the one having the nearest wheelbase.

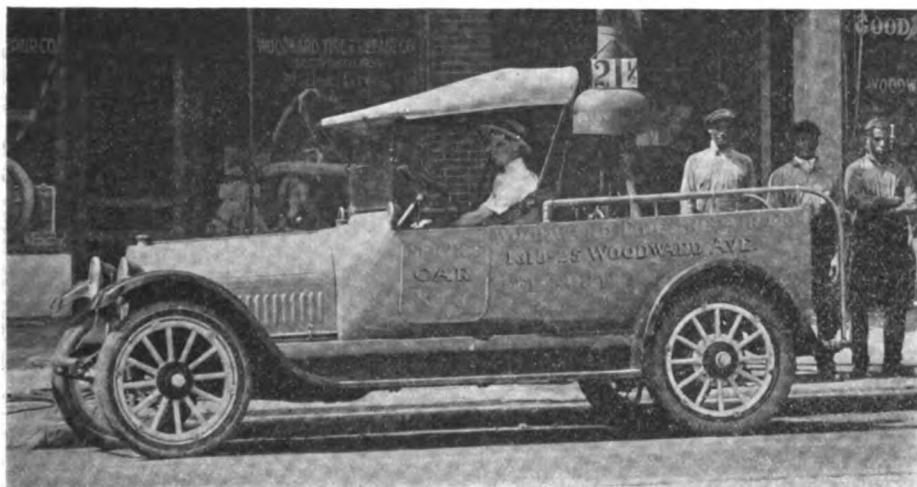
Several points are brought out in Fig. 2. Two fire extinguishers are attached at the front of the driver's seat. In this position they may be readily obtained, and are less liable to be stolen. At each side of the body, just behind the driver's seat and at the rear are trouble lamp extension plugs. These permit extensions to be taken directly to the disabled car.

Spot Lamps Are Serviceable

In addition to the usual spot lamp, many service cars are fitted with four additional spot lamps. These are attached to the guard rails just above the trouble lamp plugs. These permit the disabled car to be practically flooded with light.

The subdivision of the seat compartments and the location of the tools is indicated. It will be noted that tire tools have one compartment, extra tubes, and patches, another, and carbureter parts another, and electrical parts another. This is essential, as the service mechanic should be able to get the required tools and repair parts for the trouble in question without disturbing any other tools or parts.

The more general repair tools, such as hammers, wrenches, screwdrivers, in fact all the standard tools common to all jobs, should be carried in a tool bag. This



Here is a typical service wagon which is good looking as well as serviceable. It is operated by the Woodward Tire & Repair Co., Detroit



The Cadillac Automobile Co. of Illinois, Chicago, has built a service truck that permits a wrecked car to be carried bodily back to the service station. This truck was built in the service station of the company. The feature of the truck is the tilting platform, which may be dropped, forming an inclined plane permitting the wrecked car to be loaded. The platform is 16 ft. long, 7 ft. wide, and is hand-operated, a gear and ratchet permitting it to be locked in any desired position. The power windlass is driven from the engine shaft through a 26 to 1 worm gear and then through a train of spur gears, giving a ratio of 76 to 1

Working Drawings for Building

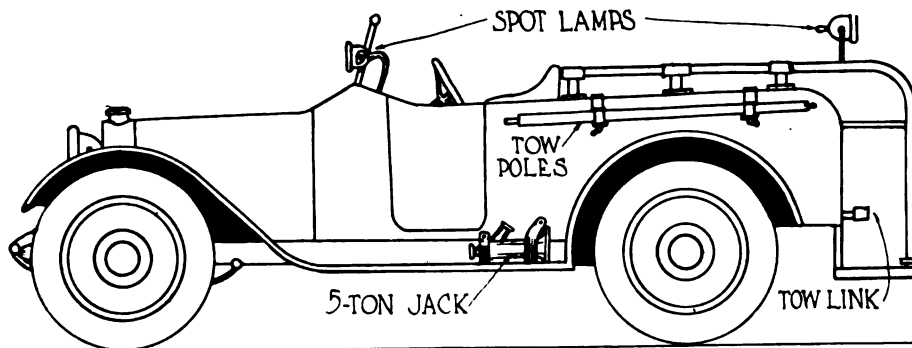


Fig. 1 (Above)—After studying hundreds of service cars in dozens of the largest cities and many smaller ones, Motor World believes that a design of this general kind is best. Note particularly the method of carrying the towing pole, the jack mounting on the runningboard and the location of the several spot lamps

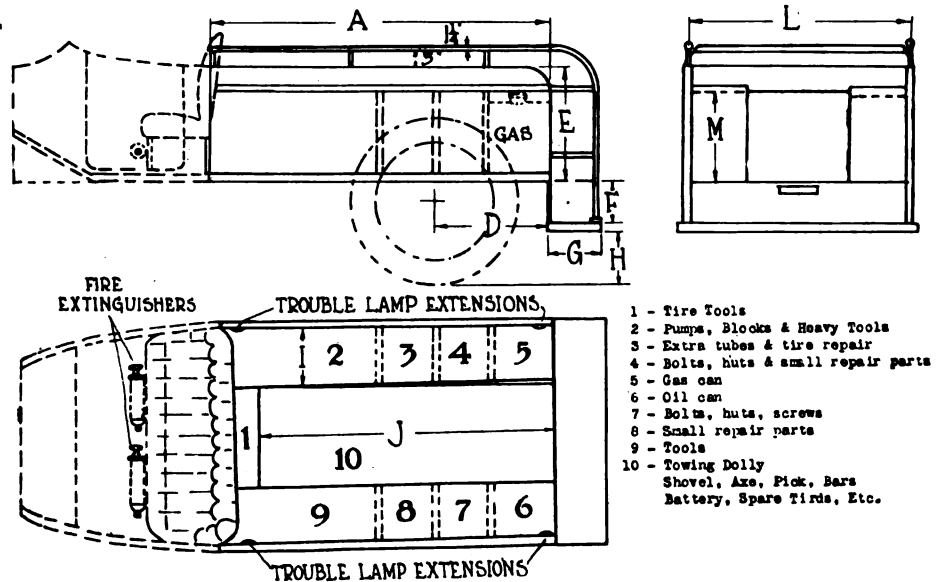


Fig. 2 (Right)—Here is a detail drawing of the body shown above. The lettered dimensions on the drawing are given in the table on the opposite page; the figures refer to the location of the various tools and accessories

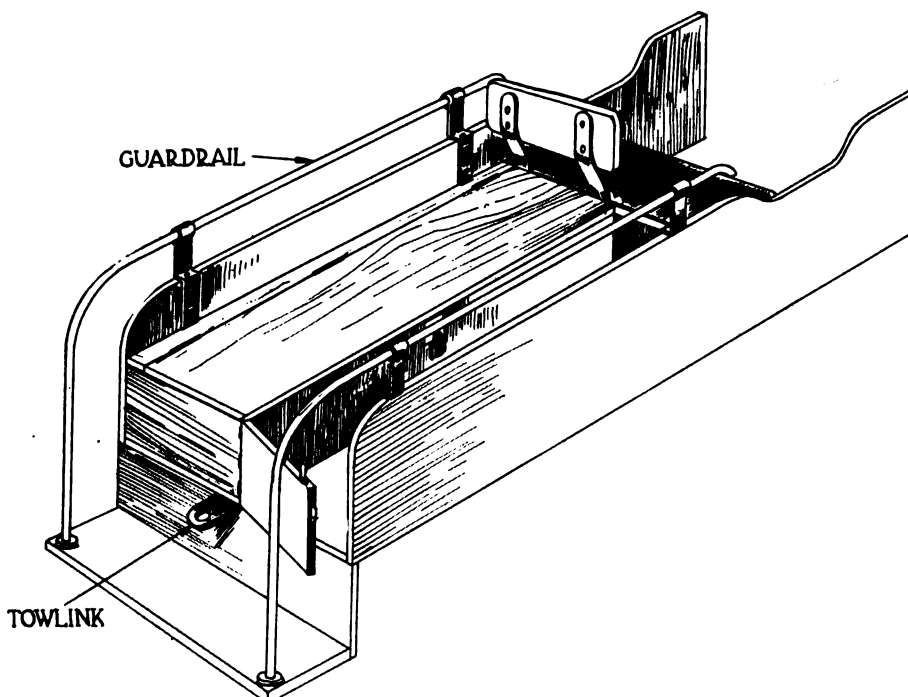


Fig. 3—An alternative type of body, built especially for very light chassis, often is desirable, in which case the arrangement can be made something like this. This is a body that is used quite successfully by the Chevrolet company in Detroit. There is an almost endless variety of arrangements, and in laying out a car a shop foreman should be guided by the particular class of work he expects to be called upon to do

the Motor World Service Wagon

Prospective customers are prone to judge of the quality of workmanship they are likely to get from a shop by the appearance of the service car.

Have your car the best looking one in the city. Don't spare any pains to have it absolutely right in every particular.

It will be one of the best investments you can make.

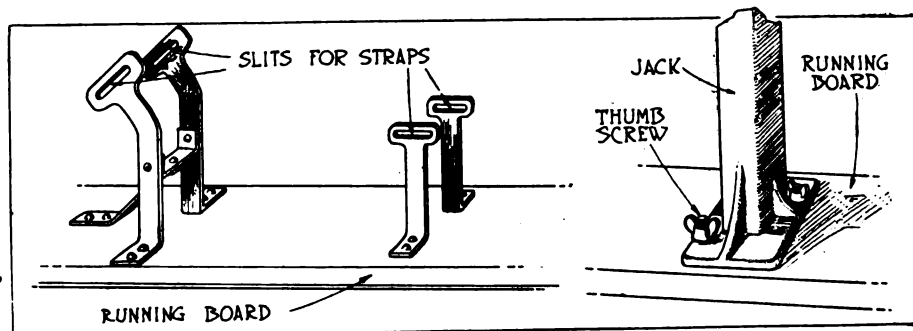


Fig. 5 (Above)—This is a detail drawing of the jack mounting shown on the service car illustrated in Fig. 1. In this case 5-ton jacks are carried, though any size can be substituted. Get them big enough to care for the heaviest work to be done and they will also serve for light work

Fig. 6 (Right above)—The service jacks can be carried bolted to the runningboard, like this, thumb-screws being used for quick action

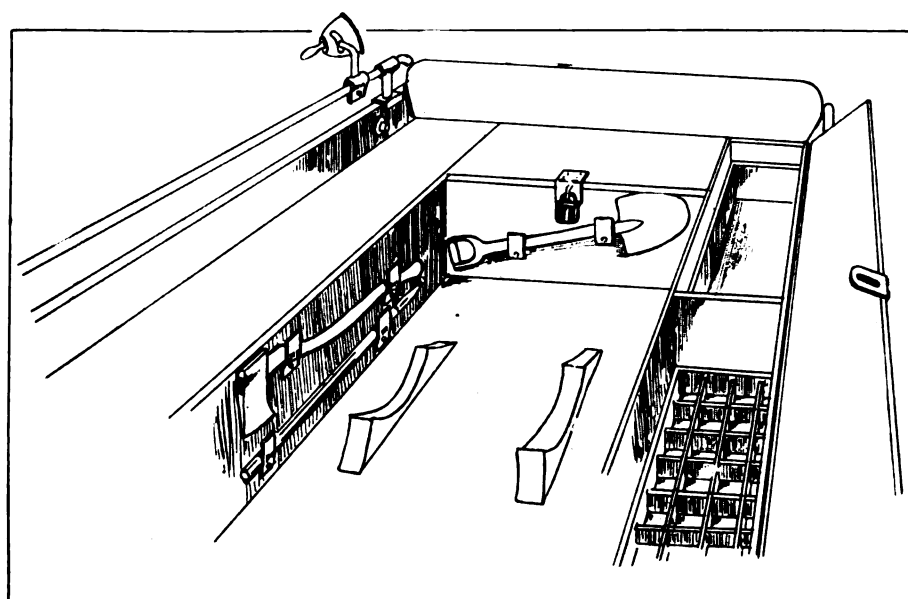


Fig. 4 (Left)—This is a view of the interior of the service car shown in Fig. 1. Note the chocks and the neat arrangement of the tools, the seat at the right not being shown, so that the compartments are visible

Table of Service Car Body Dimensions

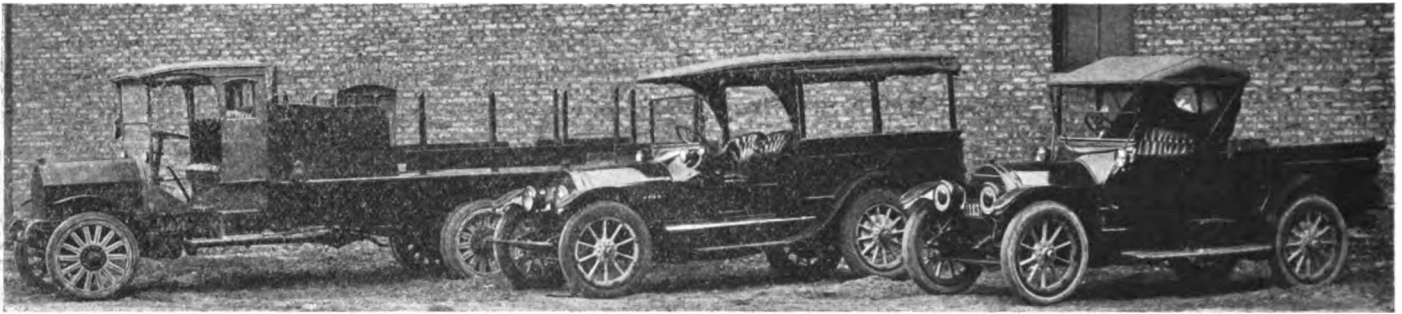
As Taken From Representative Detroit Service Cars

Car	Model	A	D	E	F	G	H	I	J	L	M
Hudson	4-37	70	39½	20	14	12	15	12	70	43½	18
Cadillac	53	84	28	23	12	12	19	14	53	55	15
Studebaker	4-58	58	25½	25	8	10	18	12½	55	45	11
Ford	T	48-up	O-up	15¾	..	..	..	..	48	34	15¾
Chevrolet	4-90	55	29	16	8	9	..	13*	43	32	13½
Dodge	...	60	35	19	11	8	16	12	43	47	17
Chalmers	5-15	68	31	24½	10	11	12	10	48	45	20
Hupmobile	32	47	23	15	9	5	..	..	50	41	13
Paige	6-46	68	30	22	10	10	..	12	52	54	12

(*—seat on one side only.)

All dimensions in inches.

This table of dimensions, which is to go with the drawing Fig. 1, has been compiled after a careful and critical study of hundreds of service wagons. The figures given are intended to be for average requirements of the average service car built on the various chassis which are listed in the table



At the left is the service wagon developed by the Cadillac company of Chicago and illustrated on the first page of this article. The other views are of two more service cars also used by this company

permits the day driver to have one set of tools and the night driver another. Besides both can then carry the common tools direct to the job.

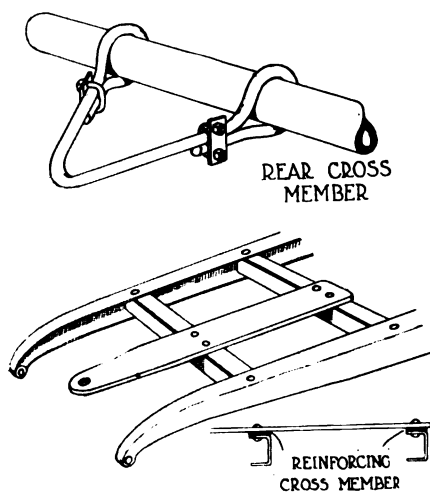
On smaller cars, such as the Chevrolet, Dodge, Dort and Ford, a patrol body arranged as shown in Fig. 3 is most attractive and just as satisfactory as that shown in Fig. 2. The bodies on these cars must be narrow, and if the tool boxes are of any width, no aisle space will be left. For this reason the tool

box is only placed on one side. This body also differs from the other in that the original front seat is not used, for by incorporating a front seat in the service body the driver's space may be made smaller, giving more room to the storage space.

Fig. 4 shows a detailed arrangement of the storage space. The axe, shovel, crow-bar and pick axe are carried on hangers fastened to the sides of the tool compartment. If a towing dolly be used

half round rests should be bolted to the floor, holding the dolly wheels securely in place. This view also shows the method of dividing the tool compartments by trays.

In addition to the regular car jack, two extra heavy capacity jacks should be carried. These may be held on the runningboard, either by means of an iron framework or by two thumb screws, as shown in Figs. 5 and 6. The latter method is perhaps the simplest, and is



Figs. 7 and 8—A simple form of towing link and a different type suitable for almost any car

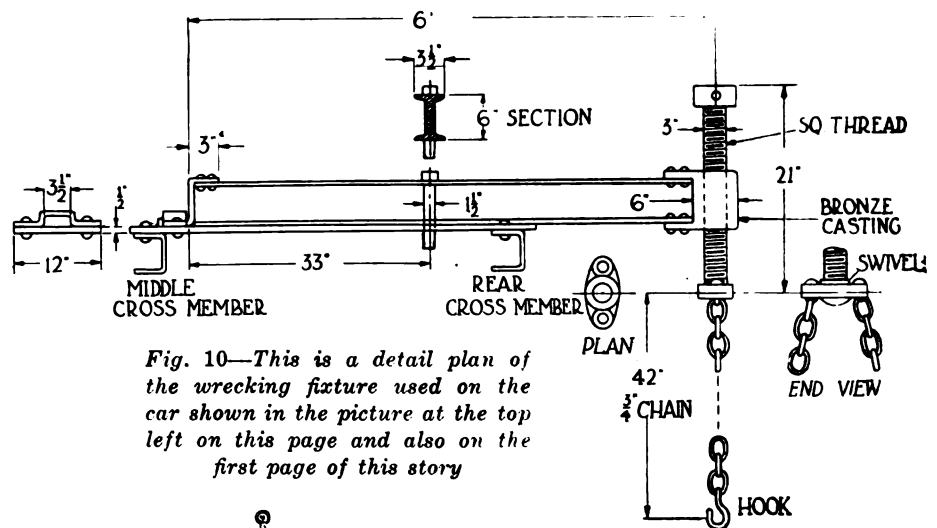


Fig. 10—This is a detail plan of the wrecking fixture used on the car shown in the picture at the top left on this page and also on the first page of this story

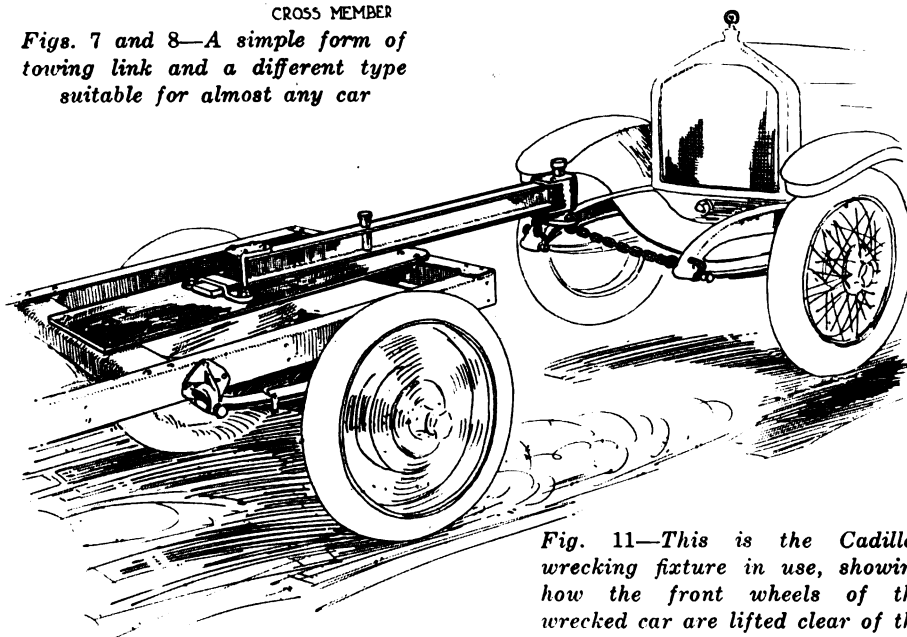


Fig. 11—This is the Cadillac wrecking fixture in use, showing how the front wheels of the wrecked car are lifted clear of the ground

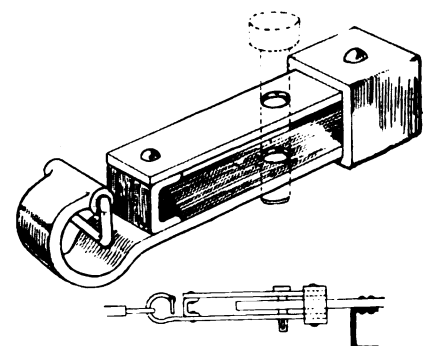


Fig. 9—A snap link like this can be removed when not in use and leaves the rear of the car unobstructed

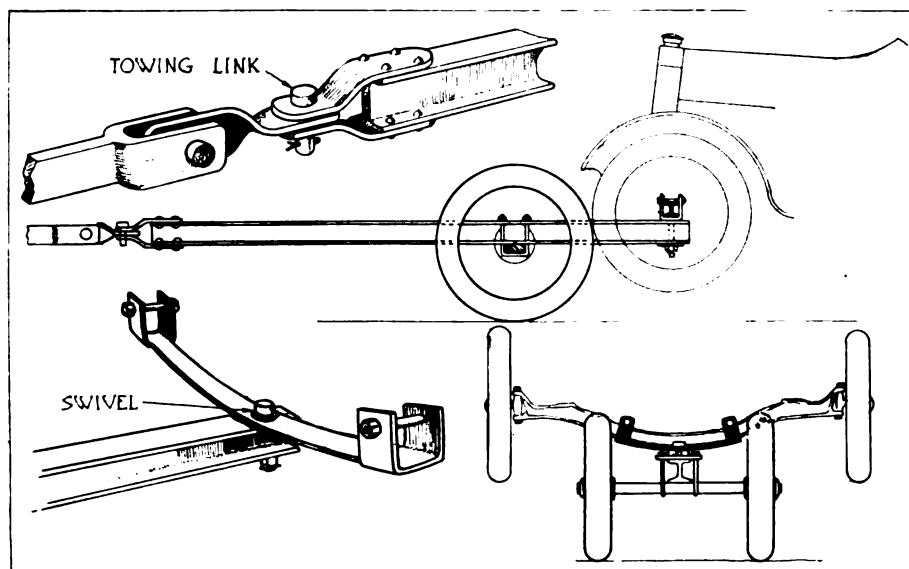


Fig. 12—The Loveland Co., Saxon dealer in Detroit, used this towing dolly; it has exceptional merit and is easily constructed

that used by Bemb-Robinson, Hudson dealer, Detroit.

A towing link of some sort is necessary. On cars having a round rear cross member, such as the Cadillac, that shown in Fig. 7 may be used. However, a steel plate, with an eye at the rear, riveted to the two rear cross members, as shown in Fig. 8, may be adapted to almost any car. The main requirement is that it be rigidly attached to the cross members, and that the cross members be adequately reinforced.

On cars in which a large overhang is necessary to the body a snap towing link connection, shown in Fig. 9, may be used. This is simply an extension to the fixed towing link, and is removed when not in use. The advantage is that by removing the link the back of the car is left clean, with no projections to catch the clothing of one entering at the rear.

The commercial form of towing dolly, or truck, is entirely satisfactory for bringing in disabled cars. However, many service stations have built their own forms of wrecking devices that possess merit, and may be built by any competent mechanic.

The Cadillac Motor Car Co. of Detroit uses the towing fixture shown in Figs. 10 and 11. A $\frac{3}{4}$ -in. iron plate, 12 in. wide, is riveted to the frame cross members, and runs practically the length of the body. A 1-in. I-beam, 6 ft. long, is held to this by means of a Z-catch and a pivot, so that the I-beam projects about 3 ft. out behind the car. At the outer end, threaded into a bronze casting, is a square threaded shaft. This shaft carries two chains at the lower end by means of a swiveled hanger. In use the chains are fastened to the front end of the wrecked car, and the front wheels of the car are lifted from the ground. One man can then readily bring the car

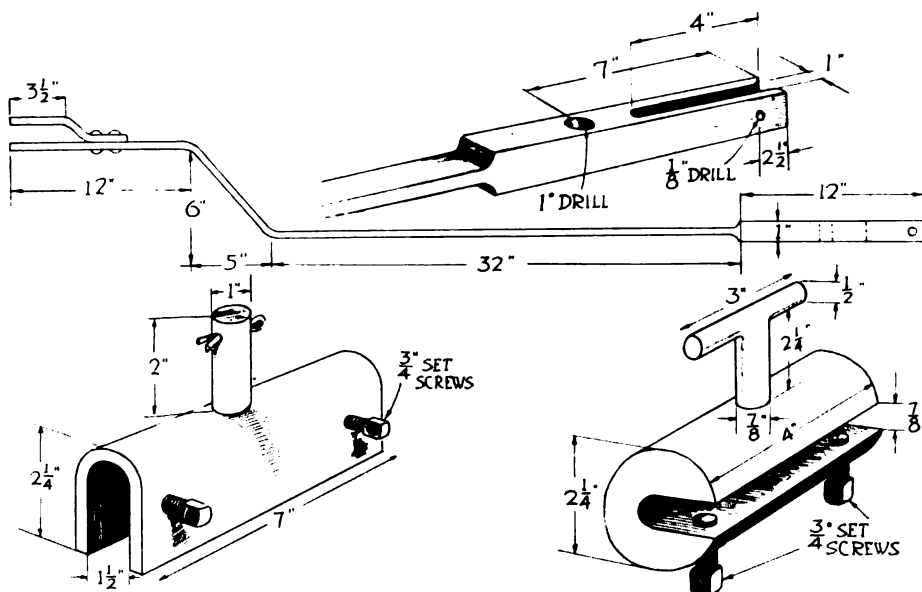


Fig. 13—Though the dimensions above are for a Ford chassis, a one-man tow-bar of this type can be made for nearly any other car

in, even though the front wheels and axle be entirely broken.

The Loveland Co., Saxon dealer, Detroit, uses a towing dolly that possesses exceptional merit. Its principle is illustrated in Fig. 12. A long I-beam is carried on two automobile wheels that are mounted on an axle about 40 in. long. At the rear a swiveled cross member, fitted with clamps, is attached to the front axle of the car to be towed. By pressing down on the front of the I-beam the front of the car to be towed is lifted from the ground, and is held in the elevated position after the towing link is fastened. One man can tow another car by means of this device.

The detailed construction of a one-man tow-bar for Ford cars is shown in Fig. 13. In this case, however, all four wheels and the steering mechanism of the car being towed must be in good order. A similar device is used on the Dodge Brothers car, and it could readily be adapted to almost any car.

The above covers the construction and equipment of the service car. Other points are essential. The car should be painted in a distinctive manner—and kept clean and neat. Many manufacturers have a standard method of painting their service cars. For example, cars giving Chalmers service are painted English vermillion, with black hood and running gear. Hudson service cars are white, with black trimmings. If the dealer is giving service on a particular make of car he should find if a standard service car color is used. If not the car may be painted any bright color that will give distinction.

To Handle Union Truck Sales

BAY CITY, MICH., Jan. 21—The Union Motor Truck Sales Co. has been organized in this city with a capital of \$10,000, the stockholders being also the stockholders in the Union Truck Co. The

new company will have charge of the sales of all Union trucks with an office and warehouse in Chicago. The officers are: President, L. W. Hine; vice-president, H. E. Buck; secretary and treasurer, Geo. Beaulieu. The board of directors is composed of James R. Tanner, Walter Foss, Wm. H. Boutell, Howard Woodworth and the officers.

PORTLAND, ORE., Jan. 21—Important changes in the personnel of three automobile firms became effective recently as the result of a transaction concluded between A. S. Robinson, Northwest manager for the Pacific KisselKar Co.; W. H. Wallingford, Ford dealer, and E. A. Mitchell, distributor of the Liberty and Premier cars. Together with A. B. Smith, road man for the KisselKar, Robinson has bought out Wallingford and will take over the Ford agency. Wallingford in turn has bought out the interests of Mitchell as Liberty and Premier dealer.

Editorial Observation

After the War

WHEN the war is over and peace is signed, and we start adjusting ourselves to the new conditions, we will find the old order of things past. The motor car will be with us; the motor truck will be with us; the farm tractor will be with us; the motor-cycle will be with us.

But they will be with us under changed conditions.

We will never again revert to conditions in our industry as we were previous to the war. We will never do business in exactly the same way as we did previous to the war.

Our zone of sale will be a new and enlarged zone. The business will be done in a different way. Different standards of business will be necessary. Different standards of honesty will be essential. Different standards of efficiency will be imperative.

Our biggest problem is to interpret these changing conditions. The manufacturer is already bending every effort to this task. He recognizes that the pre-war conditions will never return. The dealer must do likewise.

Take a simple example: A farmer in Ohio during the past fall found out that with a 1-ton truck he could make five trips from his farm to the elevator in the nearby town, carrying 40 bushels of wheat per trip in 1 day. The total was 200 bushels of wheat moved per day. With a team of horses working over the same road on the same day and between the same

farm and the same elevator, the same farmer was able to move only 50 bushels of grain, or make one trip per day.

With such a comparison, namely, 200 bushels by motor truck, and 50 bushels by horse, there is not the slightest question as to the future of the motor truck on the farm. This example points to one of the changed conditions that will follow the war.

In our farming zones we must raise greater crops and we must get the grain from the farm to the warehouse quicker than ever before. We must have roads over which the truck can travel in rain or snow as well as in dry weather.

The flexibility of transportation demands it. It permits the farmer to sell under best market conditions. It makes the transportation of wheat from the farm to the station practically four times cheaper than with a horse.

Would anybody attempt to contend that in such a farming community there is not a demand for one of the most modern types of highways?

Would anyone attempt to contend that a highway would not be a necessary and substantial investment for such a community?

We must remove the scales that have blinded our eyes in the transportation world. We must have roads and we must have motor trucks in our farming zone.

Have You Read It?

THE greatest inspiration that has come out of the war for the men who are in the motor car trade was the address by Hugh Chalmers, delivered before 400 car dealers in Cleveland on Jan. 21.

The address was listened to and taken verbatim by a MOTOR WORLD staff representative and telegraphed in full for publication in our issue which went to press on the following day.

Mr. Chalmers did not talk from manuscript. He couldn't have been half as effective if he had. It was a straight man-to-man talk from a man who knows the car and truck industry and who, on account of his

present official connection with the government departments in Washington could talk with greatest understanding and with maximum forcefulness to one of the largest gatherings of car, truck and accessory dealers ever assembled in this country.

If you have not read Hugh Chalmers' address, as reported in the Jan. 23 issue of MOTOR WORLD, get a copy of the paper and read it by all means.

And if you did read it then go back *and read it again*. It is worth it. That address is the greatest inspiration to dealers, jobbers and garage owners that has come out of the war thus far.

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Unwise Economies

The Doctrine of Fools and Why It Helps the Kaiser

The following, from the Harrisburg (Pa.) Telegraph, has been sent to Motor World. It is a clear and easily understood exposition of facts we all should keep in mind:

To the Editor of the Telegraph:

I very much fear your readers do not fully understand the true intent of the much discussed "Cash and Carry" plan. I fear they think that it is intended to cover very large purchases as well as small articles that easily can be carried home. If the plan were adopted the way some people understand it I would like to know how the newspapers of Harrisburg would get their supplies of paper from the railroads to their warehouses by the cash and carry plan.

I would like to have some one explain how the great bakeries of Harrisburg could deliver their bread on the cash and carry plan, and I would like to see what service the public would get from such a system. It occurs to me this is one of the most foolish things I have ever read in these days of prosperous times. Wouldn't it be exceptionally nice to see the coal dealers of Harrisburg go on the cash and carry plan? I should rather think that it would be a great deal better for the presses of the country to keep our industries going so we can buy Liberty Bonds to win the war and for this reason I submit the following articles, a part of which is taken from the Chicago Daily News and a part of which is written by one of the great editors of the South.

The man who shouts "hard times" these days is either a fool or a knave, and the truth is not in him.

By careful and painstaking investigation of every real news item on conditions throughout the country, we are unerringly led to the only conclusion possible—that business was never better and that prospects of big business in the future are growing bigger all the time.

"The South," to quote the editor of one prominent trade journal, "is literally burning up with prosperity." The huge army cantonments below the far-famed Dixie line demand such a volume of supplies that the merchants are staggering under the welcome burden.

New England is taxed to its utmost capacity to meet the nation's want of shoes and woollens, and its shipyards are crowded. The farmers in Aroostook county, Maine, have not yet recovered from the shock of the fabulous price paid for potatoes last spring, which paid off more farm mortgages in six months than in ten previous years.

The middle west is getting sky-line prices for grains and all other products, and the

prices paid for beef and pork insure a profit of several hundred per cent. No need to discuss this further—everybody knows the farmers' pockets are well lined.

The Pacific Coast boom is heard half way across the continent and fruit and lumber can scarcely be marketed fast enough to supply the demand. If there is a section of the country that can truthfully plead poverty, then we haven't heard of it.

A fool can stand on the beach and let a little spray hit him in the face and right away he wants to write a book on navigation. America's first battle in this war will be with the fools right here at home. A tongue without a brain behind it is as dangerous as a gun in the hands of a drunken Indian. This war is so big and complex that a fool oughtn't to be allowed to monkey with it.

We keep cranks away from our powder factories and, by the same token, why shouldn't we keep fools away from our presses? Better still, why shouldn't we muzzle fools and intern them till after the war?

Here's what the fools are doing to us:

President Wilson, in his wisdom, exhorts the people to conserve their foodstuffs. And he appoints this man Hoover, who, by the way, is the most expert food conservation specialist in the world, to help the people raise their truck and to make their truck go farther—all of which is wonderful generalship.

But the fools, who can no more fathom a deep mentality like that of President Wilson than a canary can whistle the "Anvil Chorus," miss the whole idea and just manage to catch on to the tail end of the word "economy." So right away they want to go on a nation-wide hunger strike, start a bread line and raise Cain in general.

Secretary McAdoo asks the people to buy some perfectly good 4 per cent. government bonds, non-taxable, the best investment that any sane man could make—because it is the safest. Right away the fools shout: "Uncle Sam wants you to give him your money."

Fortunately the wise men are in a vast majority in this country, and the Liberty Bond issue went over with a bang. It was the wise men, though, not the fools, that did it.

Some other fools shouted: "Let's all wear cotton"—thoroughly ignorant of the fact that we need all the cotton we can get to make high explosives out of it, for ourselves and our allies. If the so-called "cotton wear" propaganda had gone over, we would have had to fight this war out with fire crackers, or soda crackers, or pea shooters. That was a fine idea, wasn't it? All of which goes to prove that we had better let the experts in this country carry out the President's ideas. And the rest of us can find plenty to do keeping the fools from throwing wrenches in the gears.

Right now the fools are busier than ever

before. Some of them are holding peace demonstrations down in Boston, and the rest of them are sitting up nights trying to work out new stunts for putting business on the "Fritz."

President Wilson, after conferring with delegates from the nations that have been in this war from the beginning tells us that the all-important thing for us to do is to keep our industries going. In spite of this counsel, the fools are shouting at the top of their voices:

"Don't buy any automobiles."

"Don't buy any new clothes."

"Don't spend any money with the laundries—turn your collars wrong side out and wear them two days."

"Keep your wife away from the department stores."

"Don't let your children go to the movies."

"Don't do anything that will keep our factories and our stores and our places of amusement running."

"Close up everything and pay the expenses of this war out of the excess profits of bankruptcy."

The fools in this country might as well be made to understand right here that we are not going to play into the Kaiser's hands by listening to their monkey chatter. We know just how serious this war is. We know, on the other hand, that our fools are even more serious.

We must have business in this country.

We must keep our heads up.

We must preserve our prosperity, because America's wealth is her biggest gun.

Shall we let the fools take the wheel at this dangerous turn in the road?

Please, you ninety-nine and seven-tenths millions, answer in chorus:

"WE WILL NOT."

ANDREW REDMOND.

A Word from Seattle

Editor Motor World: We were very much pleased to-day when we received the Dec. 12th issue of Motor World to note that you had been so generous in giving the Eldridge Buick Company a page on their trip to the mountain. Did you not think the pictures were very interesting?

We hope some day next summer that you can make it a point to come out here and take a trip up to the mountains with us. If you have never been up there you certainly have something to look forward to, and, by the way, have you read the story in the last issue of McClure's by Edward M. Woolley?

We want to congratulate the Motor World upon the stand they are taking regarding the automobile industry during the present crisis, and wishing you a Happy New Year, we remain.—Eldridge Buick Co., J. G. Fenton, Seattle.

Thinks Better Mechanics Department Wonderful

Editor Motor World: Just a word about your Better Mechanics Department. It's wonderful—a ready reference of A1 ability. I have all the sheets of Better Mechanics bound in book form. It is worth \$50, and to think it is practically free! Keep it up.—A. L. Bennett, Bryant & Gillette, Charlotte, Mich.



The Kissel in summer



and

in rain

Helping the Dealer Sell Enclosed Cars

Kissel Staged a National Display Week for Its Winter Cars and Dealers Got Good Results

THE Kissel Motor Car Co., Hartford, Wis., recently staged its annual enclosed car show week. The campaign was designed to aid dealers in getting a flying start into the cold season.

In the lower right part of this page is shown some of the materials used in planning the work. The large piece of copy is an advertisement all ready to set up. All that remains to be inserted is the dealer's name. The "Don't Miss Our Display, etc.," line is also advertising copy.

With this advertising copy went various booklets and folders for presentation to prospects and for mailing out.

At the top of the page is shown how Manager S. S. Merney, of the Pacific Kissel Kar Co., Los Angeles, set up window displays. Similarly good displays were used in San Francisco, Portland and Seattle.

The window at the left shows the car in a summer setting. That at the right is shown in a shower of real rain. A small pipe was attached a few feet above the car's top and the spray covered the car entirely. The water ran off into a box beneath the car, from which it was pumped out. An electric motor turned the car wheels and branches of autumn foliage concealed the box so as to give the effect of fall touring to the observer. Spring was typified by a touring car amid a garden of blooms and summertime was expressed by a camp scene.

Jones Co. Adds Trucks

WICHITA, KAN., Jan. 21—The Jones Motor Car Co. has added two models of trucks and will manufacture 2000 during 1918. A 1-ton model, to sell at \$1,100, will be ready for delivery Feb. 10, and a 2-ton model will be on the market by March 1. The Model N Continental motor will be used.

The collage features a large central poster titled "Don't Miss Our Display During KISSEL ALL-YEAR Car Show Week" for October 13th to 20th. The poster includes the text "Kissel's Original Idea That Changed the Motoring Habits of a Nation" and an illustration of a car in a rain shower. Below the poster are several smaller brochures and folders, some with titles like "Here's the ALL-YEAR Car Show Week Campaign That Insures Results to Every Kissel Dealer" and "The New Kissel Four-Passenger Sedanlet, a Constant Source of Admiration".

These are some of the folders and pieces of advertising copy used to get the all-weather touring idea across to the public

The RETAIL NEWS

SOUTH

W. W. Ingram, agent for the Willard storage battery at Savannah, has moved his service station to Bull Street.

New Garages

Broward Sales Co., Fort Lauderdale, Fla.

MIDDLE WEST

Carris-Franklin Co., Cleveland, will move to larger quarters in a few weeks. The new building is 75x150, 2-stories high, and cost \$75,000.

Fred Faeser, Monroe, Wis., has sold his interest in Faeser & Lynch to his partner's son. The new firm will be styled Lynch & Lynch.

Louis B. Osbon has bought the interest of his partner, H. Heath, in the Ypsilanti Vulcanizing Co., Ypsilanti, Mich.

Simplicity Wheel Co., Grand Rapids, Mich., has rented more than 1000 feet of floor space of Miller's Ford Station, Lewis and Ottawa Avenues.

McDonald Auto Sales Co., Cadillac, Mich., has purchased the Enterprise Machine Co.

Robertson-Stansell Motor Sales Co., Detroit, recently formed by James A. Robertson and William R. Stansell, will move to 975 Woodward Avenue on Feb. 1. The company handles the Lexington.

Michigan Storage Battery Co. has been opened at 938 Jefferson Avenue, east, Detroit.

Red Osbon, the Tire Man, Ypsilanti, Mich., will open a new vulcanizing shop on South Washington Street.

Auto Supply & Implement Co., Plymouth, Wis., has been sold to Delcher & Arndt Co.

Herbert E. Hayner, Union City, Mich., has moved his tire repair shop and machinery to Hammond Street.

Thomas M. Orvell Co., Kalamazoo, Franklin dealer, will open a salesroom and service station in Battle Creek.

Floyd H. Johnson, Mt. Pleasant, Mich., has purchased the equipment of the Holly Tire Hospital belonging to William Hubble. Holly, Mich. Hubble will close his business in Holly this week.

New Garages

J. A. Pesch & Sons (addition)

Campbellsport, Wis.

Fred Welch.....Bloomington, Wis.

Melli-Blumberg Co.....Chilton, Wis.

Wausau Motor Car Co. (addition)

Wausau, Wis.

J. E. Hoghton (addition).....Delevan, Ill.

J. J. Dittmar.....Freeport, Ill.

Dickerson Lehmann Motor Co.....Peoria, Ill.

Norris Adler-Moller Co.....Quincy, Ill.

Stouffer Bros.....Decatur, Ill.

J. Cooper Hoffman.....Battle Creek

Detroit Garage Co., Inc.....Detroit

Opera House Garage.....Pontiac

Hooper & Heaton.....Boyne City, Mich.

NORTHWEST

Carl Pederson, Bismarck, N. D., has bought a controlling interest in the Missouri Valley Motor Co.

A. E. Bunday, Brookings, S. D., has sold the Ford Garage to George Brown, Volga, S. D.

Harold Kappel, Woonsocket, S. D., has bought the R. E. Stevens Garage.

Ray K. Van Brunt and W. E. Stevens, Sioux Falls, S. D., have bought the W. Van Brunt interest in the Van Brunt-Overland Co.

C. W. Thompson, Sioux Falls, S. D., has bought the L. & L. Motor Supply Co.

Erdman Garage, Austin, Minn., has been sold to A. O. Watland, president of Motor Inn Co., Albert Lea, Minn. A. C. Thompson of Clarks Grove, Minn., has bought an interest and will be manager.

Lundquist & Larson, Graceville, Minn., have bought the Graceville Garage from P. Cota.

H. B. Boyer, Verndale, Minn., has bought the John Weber garage.

Earl Boyd, Rochester, Minn., has bought an interest in the Queen City garage.

W. J. Mattice, Primghar, Iowa, has bought an interest in the Hastings-Gains Garage.

Wm. Timmerman, Sheldon, Iowa, has bought the Trimp Garage there.

Shepherd and Buehler Auto Co., Red Oak, Iowa, has sold its business to F. H. Jackson, A. C. Larson and Bernard Peterson.

J. L. Curtis, New Hampton, Iowa, has bought the garage business of Frank and Charles Relliey.

Avald Reich, New Hampton, Iowa, has sold his garage to Frank Fleming.

J. W. Smith, Harris, Iowa, has sold his garage.

Colgan and Graham will take charge of the P. J. Calligan Garage at West Bend, Iowa.

Shaw Motor Co., Traer, Iowa, has bought the Freet Bros. Garage, Dysart, Iowa.

Chas. Hart, Afton, Iowa, has sold his garage to J. T. Underwood and Ralph Sullivan.

W. R. Harris, Ruthven, Iowa, has bought the DeMill Auto Co.

Robert Eager, Belgrade, Mont., has sold his garage to W. N. Skinner and M. Critzer, Bozeman, Mont.

New Garages

Matthews & Butler..... Fargo

Statham Garage..... Glendive, Mont.

Phil Ahles..... St. Vincent, Minn.

Wilson & Martilla..... Kettle River, Minn.

Brand Bros..... Royalton, Minn.

J. A. Olson..... Cambridge, Minn.

H. R. White..... Huntley, Minn.

R. E. Shulty..... Washington, Iowa

C. R. Notestine..... Newton, Iowa

Harley Dygert..... Nevinville, Iowa

Harold Travis..... Marion, Iowa

J. F. Fraser..... Tingley, Iowa

Standard Oil Co. Filling Station

Charlton, Iowa

Iowa Motor Sales Co..... Lemars, Iowa

A. E. Jones..... Nashua, Iowa

Manson Auto Co..... Manson, Iowa

Fred Huyck..... Monticello, Iowa

Lee Burns..... Toledo, Iowa

SOUTHWEST

C. C. Drotts, Stockton, Kan., has fitted up automobile salesrooms in the National State Bank Bldg.

Ralph Love, Arkansas City, Kan., has bought the interest of his partner, Carl Marshall, in the Union Motor Co.

Buckles Brothers Automobile Co., Independence, Kan., will enlarge its quarters.

Dent & McCaughey, Olathe, Kan., have bought the City Garage.

J. N. Thouvenell, Winona, Kan., has bought the U. P. Garage.

Western Tire & Battery Co., Hutchinson, has opened new quarters.

Reed & Carey, Belleville, Kan., have leased the Meridian Garage.

Auto Supply & Tire Co., Wichita, has moved to larger quarters on the same street.

John Joiner Garage, Dockery, Mo., which

was recently destroyed by fire, is being rebuilt.

Sam T. Thompson, Craig, Mo., has bought the garage of J. E. Thompson.

Central Motor Car Sales Co., Springfield, Mo., will move into a new building.

Hiram Swope, Sedalia, Mo., has bought J. F. Smith's garage.

The Four-B Garage and Taxi Co., Neosho, Mo., is moving to new quarters.

Jameson Service Station, Fulton, Mo., has taken over the Renner Bros. Garage.

Inter State Tire Co., Joplin, Mo., will open in new quarters.

Kincaid-Vaughn Motor Co., Henryetta, Okla., will move into the Kincaid Bldg.

Emil Butler, Fairview, Okla., has bought the Orient Garage from Homer Compton.

Fletch Alford, Stonewall, Okla., has bought the City Garage.

E. H. Smith, Leedey, Okla., will move his garage to the Gates Bldg.

Visuer & Visuer, Okmulgee, Okla., have succeeded Visuer & Dewey in the Okmulgee Garage Co.

Roy Elam, Tulsa, Okla., has moved his vulcanizing shop to larger quarters at Second and Elgin Streets.

Hamilton-Lynch Auto Supply Co., Tulsa, Okla., has opened a supply store.

W. D. Sheplow, Pawnee, Okla., has bought the Oklahoma Tire & Equipment Co., from Henry Wilson.

P. O. Baxter, Hockerville, Okla., has bought the Malone Garage.

New Garages

C. E. Florence..... Wichita

Goldman & Harris..... Pittsburg, Kan.

Miller Bros..... Council Grove, Kan.

Peterson, Nelson & Nelson..... Lindsborg, Kan.

Ossie Pichard..... Pittsburg, Kan.

Cole Bros..... Kelly, Kan.

Whittaker & Featherstone

Council Grove, Kan.

R. E. Vineyard, Jr. Wharton, Tex.

Chesney & Hensley Bros.... Gainville, Tex.

Cox & Griffith..... Seymour, Tex.

Harwick & Jordon..... Waco, Tex.

Chas. Goodwin..... Carrollton, Mo.

Wm. Smith..... Clinton, Mo.

W. H. Smith..... Butler, Mo.

Louis Ringe..... St. Charles, Mo.

F. M. Reinsmith..... Monett, Mo.

Morris & Sewell..... Ryan, Okla.

PACIFIC COAST

Arthur Leighton, Las Animas, Colo., has sold his vulcanizing plant to Evans & Hoerner.

Mace Bros. have bought the Miller Bros. & Co. Garage at Lamar, Colo.

W. H. Wallingford, Ford dealer in Portland, has sold his agency to A. S. Robinson.

R. W. Bender has bought the Central Garage, Martinez, Cal.

Corkett & Cole, Ford dealers at Martinez, Cal., have erected a new building 50x125 and will handle the Cadillac, Hupmobile and Franklin.

The Mt. Diablo Tire Shop, Concord, Cal., has installed a vulcanizing plant.

Agler's Garage, Concord, Cal., has changed hands.

The Central Garage, Walnut Creek, Cal., is being remodeled.

Donald Foster and P. K. Peterson, Seattle, have opened an auto lens service station for testing headlights and installing lenses.

T. M. Houser, Spokane, has been appointed factory representative for the Republic Motor Truck Company for Idaho, Oregon and Washington.

Tire Service House, Bellingham, Wash., has leased the Panama Theater Building, and will remodel it.

How to Sell Commercial Bodies

To Counteract Any Decline in Your Business During the Winter Months

A Plan of Special Importance to Ford Dealers, Extension Unit Dealers and Garagemen

ONE thing is certain, merchants and business men use commercial equipment the year 'round; in fact, you will find the coming months most ideal to go after business on the commercial proposition.

Contributed by C. Zinhan, Advertising Manager of the Parry Mfg. Co., Indianapolis

YOU will have more time in which to conduct an effective campaign. This same spare time will provide the opportunity of keeping your help busy overhauling old chassis and fitting them with a new body that will mean a ready sale. Thus it can be done at a minimum expense.

Ford dealers ordinarily are over-sold on new cars the greater part of the year. Not so during the winter months. More chassis are available then and they can be readily disposed of at a double profit by fitting them with suitable commercial bodies.

Selling Used Cars

Don't overlook the extra money in used cars. There are big profits for you in used Fords. But don't take them in and sell them "as is." Get your used cars—all of them you can—remove the old bodies, and if they are in decent shape sell them for all you can get.

Equip the chassis with a business body and sell them as the best and most economical delivery cars made.

This is the season of the year when the merchant will be confronted with the problem of delivery during the holiday season. That's one of his worries at this particular time. He doubtless remembers the difficulties of the past season and of course is awaiting the solution. You have it in a commercial outfit.

You will find any number of cases where horse-drawn outfits were not capable of the strain during the holiday season. Goods were shipped late at night or the next day to the dissatisfaction of every one.

Make your appeal from this angle and you'll have eager, open ears ready to give commercial equipment careful consideration, even give you a chance to prove your claims, and you can do it; therefore, a sale is made.

There are thousands of miles of good service in practically every used Ford

chassis. Ford parts are cheap when overhauling must be done. A coat of paint costs but little—a commercial body is inexpensive—and will make it look like a new car. And it will give the same service, dollar for dollar invested, as a new chassis.

More profit can be made in this way than on a new Ford if properly handled. You can offer the merchants of your city cheap delivery and build up a big and profitable department of your business.

Try This Plan

1—From your records or other means at hand get the names of all the Ford owners whose cars have been in use a year or more. Make a list of them. Write each a letter urging the advisability of turning in their old car and driving a new one. Show them how it will pay them to do this every year and at a small expense always have a new car they will be proud of. That's one profit.

2—Take off the body. If it's in any kind of shape at all you'll find a ready sale for it. About all you need to do is place it outside your place of business

with a "for sale" tag on it. Another profit—and without any expense to you.

3—Overhaul the chassis. Put it in good shape, replace all worn parts, give it a coat of paint, equip it with a business body and you are then ready for your selling campaign, where each sale means another profit.

How to Sell Your Prospects

1—Make a list of all merchants in your city that should be using commercial equipment for the betterment of their business.

2—Take advantage of the manufacturers' help. They will, as a rule, be glad to co-operate with you in this campaign, lending you such assistance as sending letters to this list of prospects you have compiled, providing you with literature, circulars, letter enclosures or lending you electrotypes for newspaper advertising.

3—Determine how much you can afford to spend for advertising—and advertise.

4—If you can't employ a salesman to call on your most likely prospects, write each a letter or series of letters (not more than three) and impress on them these features of motor delivery:

How it will do the same work at less expense.

How it will displace part of his help and equipment.

How it will widen his delivery limits. How it will increase his customers in number.

How it will build up prestige.

How it is necessary to progress.

And if you call on them have the figures and examples to illustrate. Or if you prefer, use any of the truck letters shown in the Oct. 10 issue of Motor World or the letter shown on this page.

Delivery Body Letter

Your business is represented all over this community by the appearance of your delivery equipment.

If you have a snappy, business-like commercial body on a Ford chassis, it is sure to attract attention and inspire respect among your customers and prospective customers.

Besides that, it is the best, quickest, and MOST ECONOMICAL method of delivery.

Why not call us up—Belmont 67— or drop around at our salesroom—82 West Washington Street—and let us show you a commercial body adapted to your particular needs?

Let us show you—

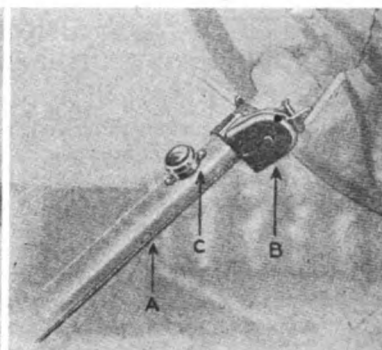
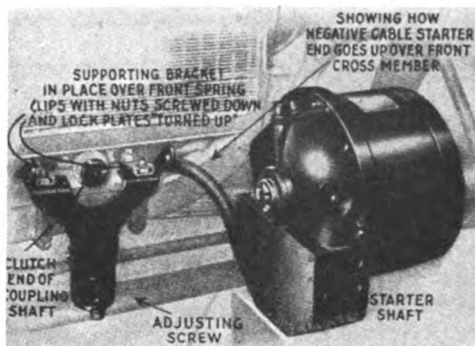
Not merely what it costs you but—

What we can SAVE you—now.

Accessories

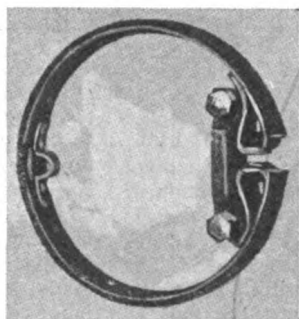
EVEREADY FORD STARTER

Departing from the style of most Ford Starters, the Eveready type is not located under the engine hood, but is attached to the Ford chassis front cross member, in front of and below the radiator. The starter is an electric motor which is controlled by the regular Ford spark lever, and it receives current from a storage battery included in the equipment. When not used for starting, the electric motor serves as a generator. The lighting current is also supplied from this battery, and is controlled by a switch on the left hand side of the front seat heel board. Price \$85.—American Ever Ready Works, Long Island City, New York.



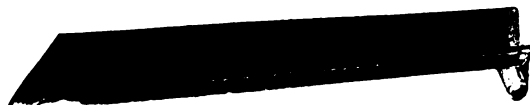
EVER SAFE BRAKE FOR FORDS

This is designed to take the place of the regular brake shoe without changes being necessary. It is lined full length with wire-inserted long-fibre asbestos lining which can be renewed. Adjustable shims are provided, allowing the lining to be entirely worn out. The band is made of steel. The prices per pair are: Raybestos lined \$2.50; metallic lined for extreme conditions \$3.50. Extra, flexible, interchangeable metallic linings ready to attach, per pair \$2.25. —Never Break Products Co., Bangor, Pa.



CLIMB-OUT AND SHOVEL

This device serves first as a shovel to make a path for a mired wheel and then as a track on which the car may be run from a hole. In addition a wheel attachment is provided whereby the device may be used as a wrecking truck, when one wheel is disabled. It comprises a metal trough in which are a series of tire cross chains, providing traction. One end is beveled to form a shovel-edge and the other is metal capped carrying a bearing and a wheel attachment and serving as a



SYRACUSE FORD LOCK

A five-tumbler lock in which the common contact strip through which the current reaches the coils is grounded, thus effectively preventing any means of connection without the key. It fits both the old and new Ford switches. Price \$2.50. —Syracuse Universal Mfg. Co., Syracuse, N. Y.



SHALER ROADLIGHTER

This is a headlamp lens for deflecting the rays of light so that they will not rise above 42 in. over the roadway and having prisms arranged on the rear side so that the proper illumination is thrown to the sides of the road to comply with the various lighting regulations in all States. The front of the glass is perfectly smooth. Various sizes are made, those for the Ford selling at \$2.75 and for all other cars at \$3.50 per pair.—C. A. Shaler Co., Waupun, Wis.

VICTOR LAMP FOR FORDS

There is a new Victor electric lamp for Fords which can also be used as a trouble lamp. The reflector instead of being fastened in the body is attached to the door and the door is hinged at the bottom so that when it



handle. In addition the Climb-Out may be used as a jack foundation in soft ground.—S. H. Heginbottom & Co., Room 312, Bearinger Bldg., Saginaw, Mich.

WOODWORTH CLEARLITE LENS

An anti-glare lens, the upper half of which is composed of a waving surface molded on the inside of the glass, the waves extending vertically. The lower half has a series of prisms, extending horizontally, also on the inside of the glass, deflecting the light downward on the road. Made for all types of cars. List price from \$3 to \$4.50 per pair according to size.—Woodworth Mfg. Corp., Niagara Falls, N. Y.



is opened it carries with it the bulb and reflector. By swinging the door down the light can be directed at any angle. The lamp is 4 1/4 in. in diameter and is equipped with a 4 c.p. tungsten bulb. It may be operated on a 3-, 6- or 9-volt circuit. The reflector is brass and the lamp body is in black finish. The price per pair is \$4 retail.—Corcoran-Victor Co., Cincinnati.



GRIPWELL PULLEY COVERING

A refined vegetable oil compound of great adhesive power which, when applied to iron, steel, wood or fibre pulley surfaces greatly increases their grip and is said to add 30 per cent to their tractive power. It is applied only to the pulley, not the belt, and therefore can have no injurious effect on the latter. It is applied in connection with a specially prepared canvas. Guaranteed five years. Price \$1.25 per lb. Special price on trial outfits. —Gripwell Pulley Covering Co., 13 Water St., New York.

GEMCO STEERING WHEEL

A tilting steering wheel replacing the ordinary Ford wheel without mechanical changes, the spiders being machined to fit the standard Ford steering column. The wheel is 17 in. in diameter, 2 in. greater than standard. It can be tilted and readjusted in one second. Price with plain or corrugated rim \$4.70 and \$5.20, respectively.—Gemco Mfg. Co., Milwaukee.

Repairshop Shortcuts

From The Motor World Roadman

1529—SPRING CONNECTING-ROD FOR TRAILER

A double-spring connecting-rod, acting both in tension and compression, is made of strap iron bent to the shape shown in the illustration and fitted with a drawbar provided with two coiled springs, one acting to the pull of the truck and the other easing the shock of a sudden stop. The forward end of the drawbar engages a yoke of strap iron bolted to the rear of the truck body through an eyebolt which allows the trailer to assume any angle with respect to the truck.—C. C. Spreen, Flint, Mich.

1530—UTILIZING COMBUSTION GASES FOR HEAT

An effective heater for the upper floors of a garage can be made with discarded hot-water kitchen boilers by the arrangement shown in the illustration. The smokepipe of the stove on the lower floor is disconnected from the flue and led through the ceiling and the bottom of the boiler, its open end extending to within a few inches of the boiler top. Another pipe extends from near the bottom of the boiler through its top and thence to a second boiler on the floor above where the same arrangement is repeated. The smoke and all combustion gases must, therefore, completely fill both boilers before entering the smoke flue above the second boiler. A considerable amount of heat is stored in each boiler and radiates from it as well as from the exposed pipe. A damper in the pipe where it enters the flue is controlled by a wire from a point near the stove.—J. J. Meehl, 5 Hamilton Avenue, Greenwich, Conn.

1531—JACK FOR FORD CARS

A serviceable jack for Fords is made from a steel plate 15 x 16 x 5/16 in. mounted on four swivel castors and having a frame made of two pieces of steel 35 in. long, 2 in. wide and 3/4 in. thick, shaped and bolted to the frame as shown. A Ford driveshaft bolted to the bedplate serves as a handle. The jack is simply tipped forward under the axle and a slight downward push on the handle lifts the car. Two such jacks make a very good turntable.—Carl G. Cary, Keyes Garage, Oakland, Ind.

1532—DETACHABLE LICENSE-PLATE HOLDER

To avoid waste of time in attaching and detaching license plates on new cars

taken out for a short time only for demonstration and testing, each plate is attached to a steel frame having a hooked member fitting over the headlamp tie-rod and held in place by a setscrew.—C. C. Spreen, Flint, Mich.

1533—SOCKET WRENCH

A convenient socket wrench for removing or replacing the special type of piston-pin retaining screw used in the Dort engine is made from a 3/4-in. steel rod 3 1/2 in. long with an hexagonal socket 3/8 in. across the flats and 3/8 in. deep in one end, and a 5/16 in. hole through the other end for a handle. It is a great time saver.—C. C. Spreen, Flint, Mich.

1534—STEADY-REST FOR LATHES

A lathe steady-rest for holding long bars of angular cross-section is made of a piece of steel tubing, with four setscrews tapped into it at right angles near each end to hold the stock. The center of the tubing is machine-smoothed and turns in the steady-rest bearings of the lathe. Square, hexagonal or other shaped rods can thus be steadied as accurately as rounds.—C. C. Spreen, Flint, Mich.

1535—PORTABLE REPAIRSHOP LIGHT

An excellent portable light for use about cars in the shop is made by soldering an ordinary lamp socket inside of a tin funnel and providing the ends of the flexible cord with test clips, which are hooked to the battery terminals when the lamp is in use. The funnel acts as a projector for the light and also protects the bulb against breakage.—A. L. Bennett, Bryan & Gillette, Charlotte, Mich.

1536—OLD FIREHOSE FOR ANTI-SLIP FLOOR COVERING

Old canvas firehose makes an excellent covering for use on the inclined entrance to the garage and on ramps within the building, preventing the slipping of wet tires and protecting the wooden floor surface from chains. The hose is cut lengthwise and tacked to the floor like a carpet, with the canvas side up. It gives a perfect grip and costs only the labor of laying.—C. C. Spreen, Flint, Mich.

1537—BEARING ALIGNING REAMER

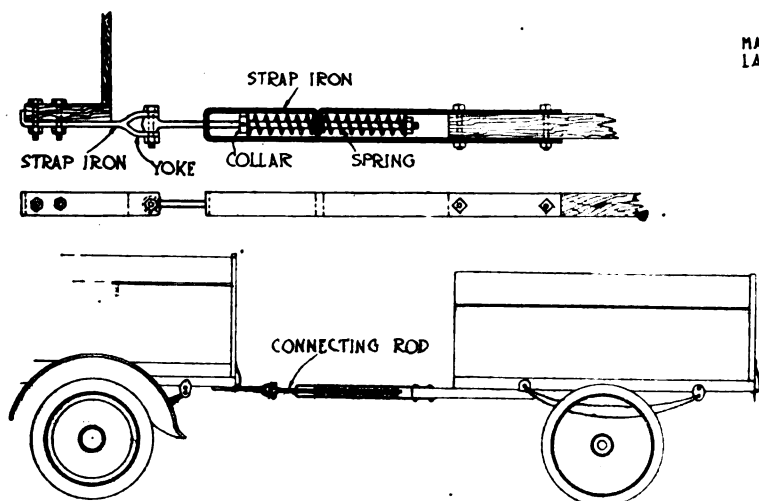
A convenient and inexpensive bearing aligning reaming bar is made from a true bar 4 ft. long, 3/8 in. diameter turned down to 1/4 in. for 10 in. of its length. A spiral reamer .003 in. under the desired finished bearing, with 3/4-in. hole, is keyed to the turned end. Four collars are provided, two of which slide over the 3/8-in. shaft .003 in. under the finished diameter, one on the 3/8-in. shaft with the diameter of the bearing clamps, and the other on the 3/4-in. end with outside diameter .003 in. under that of the finished bearing. When the collars are placed in the crankcase in their proper positions the bearing liners can be reamed to within .003 in. of the required finish with a great saving of time.—C. E. Bradish, 106 Queensbury St., Boston.

Monroe Reduces Price

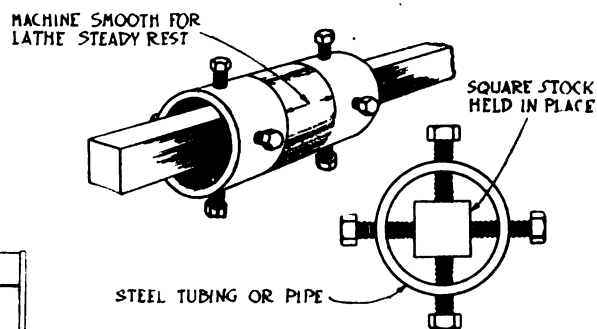
PONTIAC, MICH., Jan. 25—In spite of the continually increasing cost of material, and contrary to the practice of most motor car manufacturers, the Monroe Motors Co. is decreasing the price on its product for 1918. The model N-6, four-cylinder touring car, previously cost \$1,095, and this has been reduced \$100 for the coming year. The sedan body, mounted on the same chassis, sells for \$1,850. The reason stated for this decrease is that an increased production renders the reduction in price possible.

\$1 a Shortcut

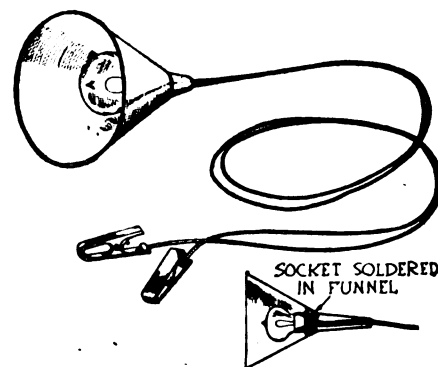
SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.



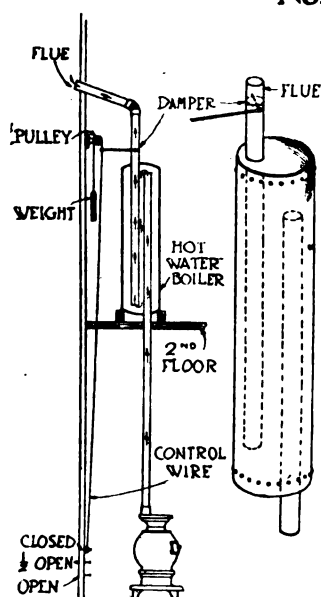
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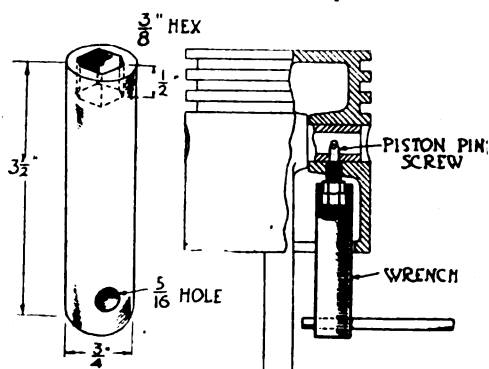
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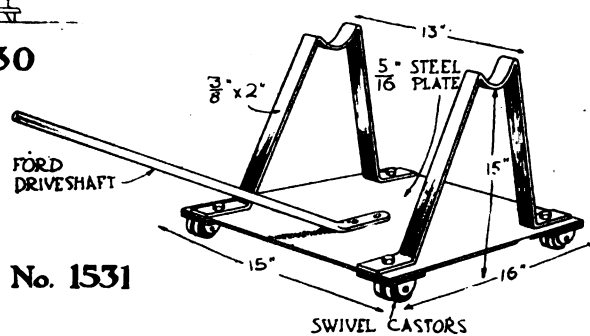
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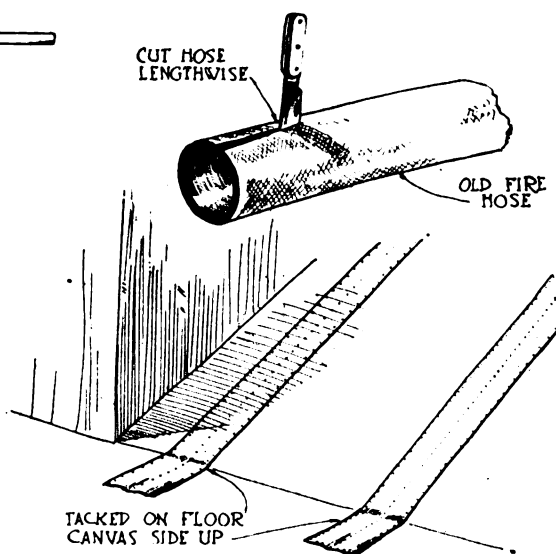
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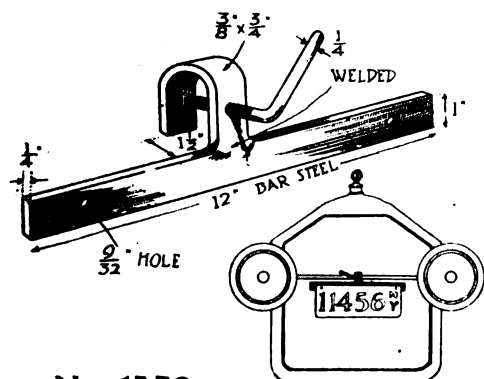
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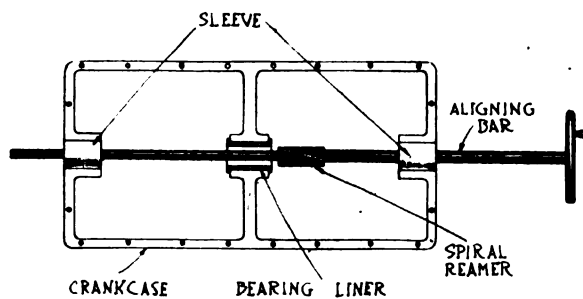
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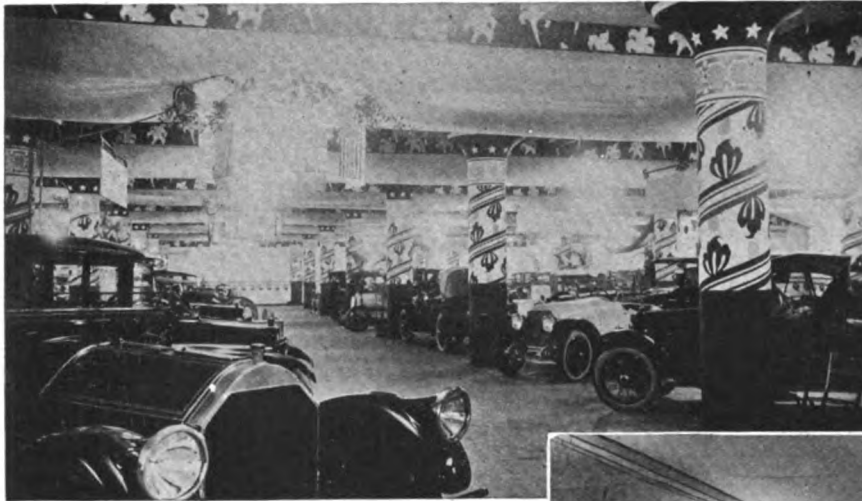


No. 1537

How Philadelphia Put Over a Real

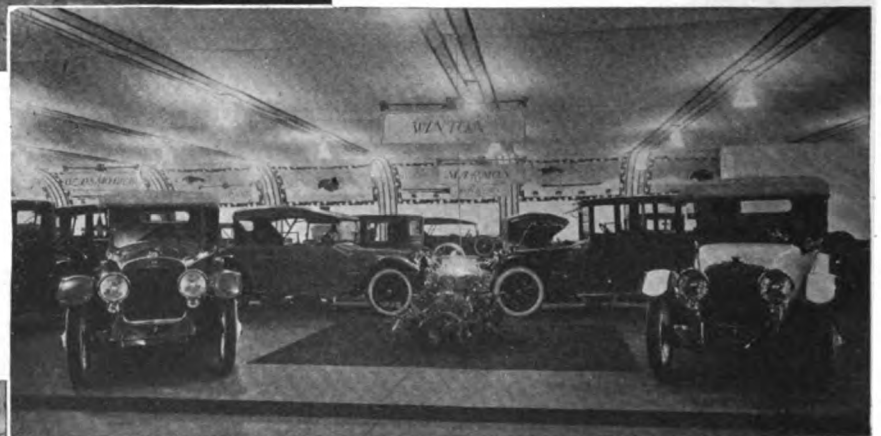


The two views above and the one just next them on the other page give a general idea of the appearance of the "White Room." Note the effect of spaciousness and air, the entire lack of crowding and the attractiveness of the layout



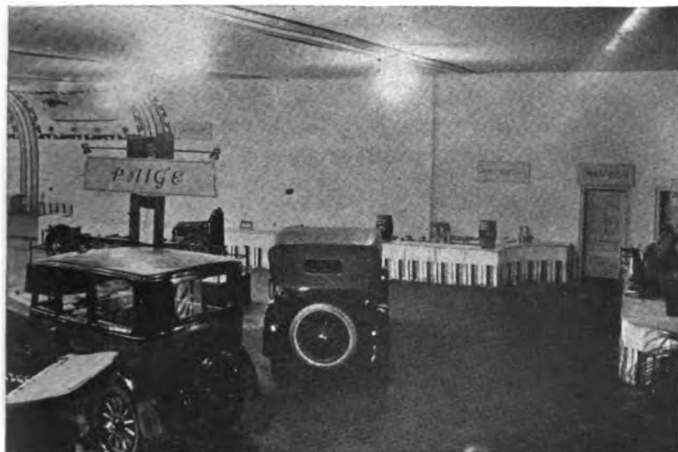
This is the Red Room and the dark part of the decoration was all red, giving a very pleasing effect—"A snappy exhibit," says Ray W. Sherman, who wrote the story about the show in last week's MOTOR WORLD

The Winton exhibit at the right was the only one at the show where there was any special decoration. Here there was a fountain which went a long way toward making the space attractive



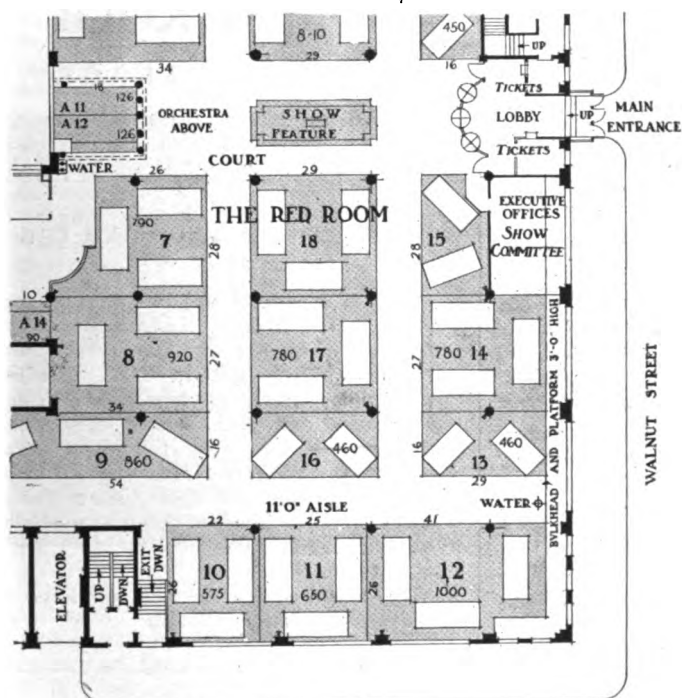
You cannot see the rug that hid the bare floor in this picture but it is there anyway and it helped a lot in making the exhibit home-like and inviting

Good Show

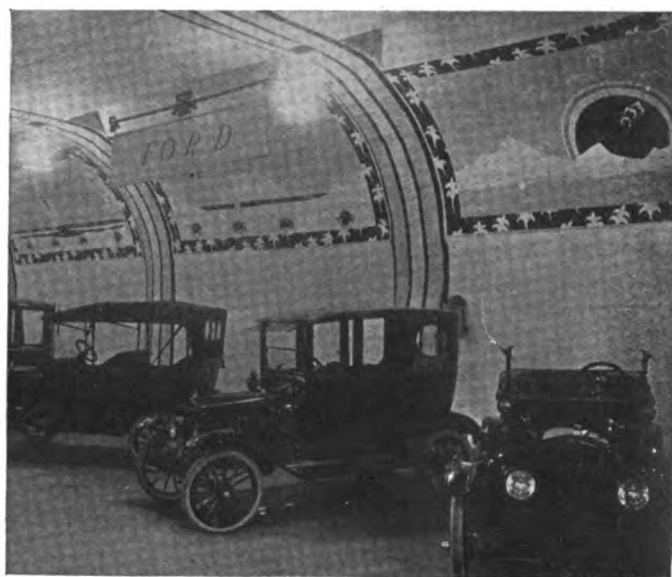


THE Philadelphia Automobile Trade Association had a wonderful show last week. (These pictures would have been printed with the story but for the fact that Dr. Garfield made the engravers close down last Monday.) It was wonderful because it was well planned and what is more important, it was planned well in advance and then those who exhibited were made to stick to the plan. There was no jamming cars any old place an exhibitor had a mind to jam them. Each exhibitor had a certain size space and was told just how many cars he could put in the space—no more. Judge of the result from the pictures on these two pages.

Below is a section of the floor plan that was drawn up weeks before the show was actually opened. In each exhibit space a certain number of cars were drawn on the plan according to the size of the space. Then the dealer was told he could put just that many cars in the space—no more. Of course, everybody did as they were told and the result is that Philadelphia had one of the nicest shows that has been staged



This is what you saw when you walked in the door, at the Philadelphia show. It's a W. S. S. booth—War Savings Stamps. Incidentally, its view gives a very good idea of the broad aisles and the attractive decorations



And here is the Ford exhibit, which also gives some idea of the treatment of the side walls



Winter Business

Drive for
Winter
Business

Drive ! Drive !! Drive !!!

BOOST FOR WINTER DRIVING

The Winter Bulletin issued by John Millen & Son, Montreal, is a good one. Not too long, only 16 pages, but full of real winter accessories. The inside of the front cover is a bulletin by itself. It is given as a winter help to the trade. Good! Use it as a model. Pass the idea along. Boost for winter driving and winter business.

**This is the Car all tattered and torn
That staggered in so battered and worn.
This is the Shop where she was towed
That sent her out to scorch the road.
And this is the Man, so ready and quick,
Who trimmed her up and "turned the trick."**

Winter Bulletin 1917-1918

★ ★

THIS Bulletin is issued as a Winter Help for Business for our trade friends. Each year shows a constantly increasing amount of winter driving, and the wide awake dealer with suitable goods on hand keeps his cash register busy during winter as well as summer months.

Your special attention is directed to several new lines listed. The Tri-Co Rain Rubber is sure of a large sale; it is a cleaner adaptable to all types of two-piece windshields, and a necessity for safe driving in stormy weather.

A word on the "Copley Primer." This is something more than a mere primer as heretofore known. It provides not raw gasoline, but an explosive mixture—it is a carburation device in itself, and has been known to bring in a car with the regular carburetor out of commission.

The "New Osgood" Lens combines scientific accuracy with practical results. Legislation is afoot in Canada to obligate the use of anti-glare devices—a boon to the motorist and a source of profit to the dealer.

Anti-freeze mixtures, engine and hood covers, foot-warmers, tonneau heaters, priming plugs, etc., are a few of the standard lines already on your shelves, but are shown as seasonable reminders.

Our many customers handling "Veedol" Lubricants are advised to have on hand a stock of the lighter grades. Most necessary in winter weather is a high-grade cold-test cylinder oil, and "Veedol Zero" fills the bill.

Boost for Winter Driving and Winter Business

ANDREW KOLB

HIGHLAND GARAGE

Midland Avenue

Nyack, N. Y.

THE CAR, THE SHOP, AND THE MAN

This is the combination you are trying to bring about. Andrew Kolb has the idea. You are the Man. You have the Shop. Now—get the Car. Go after it. People won't know how good you are unless you tell them. And they won't remember if you only tell them once. Keep at them. Write. Advertise. Talk. And when you get them, show them. Make each job the best job you ever did—and the next one still better. Then improve on that.

If you keep this up you will have to enlarge your shop, though.

*Have YOU
done your
best?*

Give the Other Fellow Some

You can't get all the business there is. Hard luck, but a fact. Another fact is that if you were the only man in the business there wouldn't be any business. Many cars, many repairs, many shops. The thing works in a circle. The main point is to show the customer what his needs are. The more he needs the more business you—and the others—will get. Don't knock your competitor. Boost him. It helps you as much as it does him. Perhaps more. Create business. You will get your share. Every new idea you put out is a talking point for him as well. Every advertisement he pays for is so much publicity for you also. You are partners in the business of getting business. Competition may be the life of trade. Co-operation is its very soul.

Splendid Co-operation

HERE is a man who has learned that if you try to keep everything for yourself you don't get it. By helping the other fellow you help yourself. And he has proved it. Read his letter. Have you ever advised a customer to stock up before seeing you? Not on your life! But that is exactly what the G. Norman Baughman Co., Tampa, Fla., are doing and—read the letter! It is the best essay on successful co-operation that we have seen for many a day.

Editor Motor World: Someone estimated that for a certain length of time during the height of the tourist season in Florida last year fully 1500 cars per day passed through Jacksonville driven by northerners en route to some point in southern or central Florida, or on a vacation tour during the cold part of the season.

On this basis a great many thousand automobiles entered Florida from other parts of the United States and stayed on an average of at least four weeks. Each machine probably averaged four persons. Each of these persons was on a vacation, had money to spend for vacation purposes, and spent it much freer than they would perhaps be inclined to under their home environment.

This meant a big increase in business for automobile dealers, garages and, of course, ourselves, with the result that each year we have been in business in Florida, January has been the largest month that we have had, and we have never been able to reach it during any one of the other eleven, until the following winter. For instance, January of last year was the largest month we have had in our business until October of this year, when we went ahead of January by several thousand dollars. We expect to do that again in November, and in December, with another high mark set for January, 1918. In fact, our business is so much better during the winter time that we are more concerned in ways and means of increasing business in the summer months than we are in the winter.

The greater percentage of this large number of cars that come to Florida in the winter time are fully equipped as to

extras before leaving the home of the owner so that the Florida dealers are knocked out of a great deal of business that they might otherwise get. This, however, is only natural, as one starting on a prolonged journey prepares for every emergency.

We believe that one good way for the better class garage men and dealers in the north to increase winter business would be to cater particularly to those people who contemplate a southern winter trip with their car and equip them with all of the many touring comforts and necessities that can be had to-day. No doubt many of the winter visitors to Florida in the bustle and hurry of preparing for their trip overlook many things that could be sold to them with a little solicitation on the part of the alert dealer at considerable profit to himself.

I should not advance this suggestion as it is contrary to our best interest and the class of trade which we serve, but it offers such a good opportunity for the northern dealer to stimulate business that he should not overlook it. Florida dealers will get their share out of the sale of necessities and the increased prosperity of the state in general.

We have been much interested in your timely articles on winter business and although they have not applied to us, we have read them with great interest and have obtained many valuable suggestions from them that we find we can use even in the sunny summer clime of southern Florida. — The G. Norman Baughman Co., C. D. Pettingill, Sales Manager.

Overhaul Cars Now

Editor Motor World: There has been a very strong tendency on the part of car owners to put their cars in dead storage as soon as the real cold weather sets in. These cars are invariably kept in storage until nice warm weather in the spring and then there is a rush for repairshops.

In our business we have an excellent opportunity to observe how this works. There is thousands of dollars worth of work that should be done on these cars before they are put in commission, and

in a great many cases, in fact in most of the cases, the repairshops are so busy that they simply have an opportunity to do the absolutely necessary repairs and a great many small details that should be taken care of are neglected. This means that the life of a car is materially shortened. It means that during the extremely cold weather repairmen are sitting around like farmers playing tag with their thumbs, and just as soon as warm weather comes they are so busy that, working day and night, they cannot take care of it all.

In our business we make it a point during the quiet season to work on stock that we anticipate will be used during the rush period. If it were not for this, we would not be able to take care of one-half of the business that is given to us. The repairmen cannot make stock repairs. They must wait till the cars come in.

Another thing, we are optimistic enough to believe that next spring there is going to be a great demand for cars. At the present time it is common knowledge that there is nothing like the number of automobiles being made that there has been heretofore. The Government is taking over a great amount of the output of several factories. This will mean that there will be a big demand for good used cars.—Houpert Machine Co., New York.

An Excellent W. B. Letter

An excellent winter business letter is this one, sent by the Colt-Stratton Co. with a Dodge car catalogue. It is very brief and puts its message strongly and clearly.

Dear Sir:

Dodge Brothers motor car possesses marked individuality.

One principal characteristic is its economy of operation.

Another is its scarcity, especially in the spring, when everybody tries to buy one.

This trait deserves more than your attention it justifies prompt action.

Yours very truly,

COLT-STRATTON COMPANY,

H. R. Bliss, Vice-President.

Pack Up Your Troubles in Your Old Kit Bag and

Smile, Smile, Smile

By Ray W. Sherman

REILLY, who sold the Sennett in Callawassa, and who was still selling that well known car despite those who said it couldn't be done, was walking out to lunch.

He pulled on his overcoat as he walked out the office door and started across the salesroom.

Twelve feet from the office door he stopped, turned around and went back.

"Tommy," he snapped to Tommy Trumbull, sales manager of the house of Reilly, "there'll be a sales meeting at 2 o'clock!"

"Two o'clock?"

"Yes, 2 o'clock! I know it's sudden—but there'll be a sales meeting at 2 o'clock."

And at 2 o'clock there was a sales meeting with eight young men gathered around the big office in chairs. They didn't know what was coming—but some of them looked as though it were the end of the world.

"Boys," said Reilly, without the trace of a smile, "this is a damned important meeting on a mighty serious matter."

"As I was going out to lunch this noon I saw Henderson standing in the middle of the salesroom. He stood up fairly straight and all that and he wasn't sleeping on a runningboard, but the way he looked scared me."

Henderson looked puzzled and worried.

Henderson Was Puzzled

"He looked as though he felt that business were rotten and the end of the world were at hand. His face was long, his mouth was shut, but his whole face sagged, his body sagged, his mind sagged and the whole salesroom sagged with him. He even made the new cars sag and the plate glass in front even slumped down a couple of inches."

"Boys, it was terrible!"

One of the boys started to laugh—but didn't.

"I'm not going to ask Henderson why he looked that way, and I'm not going to ask any of you boys if you feel that way, but I'm going to tell you that if you do feel that way and can't get over it you had better get out right now and let us get in some smilers with backbone before we have to go into the show."

"Cornelius J. Reilly, Incorporated, is going to sell cars this year. We're going to sell a lot of 'em. We're going to have good business, even if we don't sell as many as we did during our last year—which was extraordinarily big. But we're going to sell cars, and when I say WE'RE going to sell cars I mean YOU BOYS are going to sell cars. And

BOYS

YOU all know Ray Sherman. When he gets out on the road and starts digging around, things start happening right away.

Well, he's out now. Last week he was in Cleveland—and just read over the story of the Cleveland show in this issue. Also he was in Chicago a part of last week.

We're not exactly sure where he's going next week. He may call on you. Sometimes he makes pretty long jumps. So watch out for him.

And watch his Reilly stories, too. Perhaps you may find yourself, or your employees mirrored in one of these stories.

Whatever you do, don't miss reading this one. It's a peach.

you can't sell cars if you lose all your backbone and go around acting like the star performer at a funeral.

"What our country needs right now is men, men with spines. And what the country needs has got to be furnished by the different businesses and individuals that make up the country, all of which means that this organization is going to furnish its quota of smiles and spines, and we'll do it if we have to enlarge our faces to give this increased production."

"There is no excuse whatever for these long faces. The country is full of money, and it has got to be fuller of money, and it can't be fuller of money unless business makes money. Without business there can be no bullets, no matter what Frank Vanderlip or any one else says. If Frank Vanderlip wants to get a ragged coat as a badge of honor I know where he can get good money for a lot of his dress suits."

"Not only are we going to have good business in the Sennett, but every other man who sticks to the job is going to

have good business. And the one big point I want to get to is that we all must TALK business and optimism instead of spreading this gospel of gloom."

"When you talk with the man in the salesroom, on the street, in the barber-shop, in his home, or even with your own wife and kids, tell them that business is not going to hell and one reason is that you're not going to let it."

"When a man says he isn't going to buy a new car because of patriotic reasons, ask him how he figures that \$1200 sewed up in an old sock is going to help win the war. That money in an old sock is only so much paper—and the sock is going to waste. But if the money is put into circulation it will help feed our hundred million people and keep punch in our fighting boys in France."

"I want you lads when you get up in the morning to stand in front of a mirror and look at yourselves. Smile, damn it, and don't leave the room until you get your face so it will smile. If you can't shock yourself any other way take a cold bath. That'll put a tingle into you, and it's a good plan anyway."

Smile at Your Wife

"Then when you go down to breakfast smile at your wife and kids. And when you say goodbye, say it with a smile. And when you come in in the morning, say Good Morning with a smile to the rest of the boys, and when a prospect comes in the door, greet him with a smile. And when you get near the closing point, don't forget to smile."

"When you hand the street car conductor your nickel, smile. When you talk over the telephone, smile. When you spend money, smile, and if spending hurts you, take a handful of change out and throw it to a newsboy. Do something! Anything! But SMILE!"

"The man who can't stand in my show exhibit and smile, can't stay there at all. I'll send him home. And if he can't come back smiling, he can't come back at all. The gloom stuff is done around this place. We can't run a funeral and sell cars at the same time."

"The more we can spread sane good cheer the more business we and all our competitors will have. There's a little old file over in the corner there for dead prospects. Stick your gloom in there and next summer—after you've all made a lot of money—we'll get the old file out and see what's to be done with it."

"And now, boys, please smile for me."

A big beam ran around the circle, whereupon the meeting ended as suddenly as it began.



SING IT—AND SMILE

Pack up your troubles in your old kit bag
And **SMILE, SMILE, SMILE.**

While you've a lucifer to light your fag,
SMILE boys, that's the style.

What's the use of worrying?
It never was worth while, so

Pack up your troubles in your old kit bag,
And **SMILE, SMILE, SMILE.**

Drive Your Cars Now

It Will Be Easier Now Than After The First Thaw, About March 1.

TO-DAY it is possible to drive cars away eastward from the Detroit-Flint-Toledo zone practically all winter, excepting for the specially heavy snow of the last few weeks; but when it comes to driving cars westward from the zone to Chicago, St. Louis and Kansas City greater difficulties are met with. At present the roads between Detroit and Chicago are blocked with snow, and several Chicago dealers have had a dozen and in some cases many more cars held at certain towns en route for nearly two weeks. There seem no possibility of getting them released for a week or more.

The present tie-up on drive-aways suggests the necessity of Chicago dealers co-operating with those in cities further west and securing some improvement of the Detroit-Chicago route. It would be a good investment for these dealers to contribute fairly liberally to a plan to have the entire road from the Detroit zone to Chicago improved so that it can be used during all kinds of weather through the early spring and summer. It would pay to secure co-operation with the different states and possibly the different counties en route to have road scrapers, properly grade these highways and have them oiled, or treated with calcium chloride. There is no doubt but what contributions on the part of the motorists would result in co-operation from the highway officials, and it might be possible that a Detroit-Chicago road organization could be formed that would have the interests of this particular highway in view at all times.

Must Work for Good Roads

The dealer who is opposed to assisting in road maintenance or accelerating the movement for the necessity of improved roads is not thinking in war channels. He is thinking of the cost of getting his car from Detroit to Milwaukee before the present war, and not to-day when we are short of freight cars, short of railroad locomotives, and short of men.

To-day he must think of the cost of not doing business, rather than the cost of doing business.

He must calculate what it is going to cost him not to have cars to deliver in the selling months when he needs them. If he is going to rely on the railroads he will not have the proper quota of cars at that time. It is not in the realm of possibility to get railroad cars in the zone of congestion which extends from the Mississippi east to the Atlantic ocean at that time. He might as well face it to-day. To-day is the time to plan such a highway improvement.

When a railroad taps a new country it puts down light-weight rails and uses small locomotives and light rolling stock. But when it graduates and becomes a double-track, or a four-track system, it uses the heaviest rails, ballasts its roadbed to the best condition and installs the heaviest locomotives and draws the heaviest trains. It is the volume of traffic that dictates the improvement in roadbed, in rails, in locomotives, and in cars.

Apply the parallel to the motor car driveway, the volume of driveways will be greater in the coming spring than ever before. It is foolish to expect that the old sys-

tems will continue to accommodate the volume. It is foolish to use an unimproved highway when it is more economical to improve the highway.

Let us apply the same principle to the case that our armies are applying in Europe. France employs tens of thousands of soldier workmen, constantly repairing the highways so that the motor trucks can carry the great volume of ammunition and food to the front. Not only she improves the roads, but she widens them according to the volume of traffic. It takes men to do such work, but those men are as essential there as in the trenches.

Look at our own business: it is useless to attempt to keep a sales organization or a maintenance organization in St. Louis and not have cars when they need them. The zone of your business has extended under war conditions. If the railroads cannot bring your cars you must go out and get them. Going out and getting it is not enough. You must use the most economical means. This includes an improvement of the highway, particularly such a main truck highway as that from Detroit to Chicago, and perhaps as far west as the Mississippi, with one or two branches leading north and south to such population centers as St. Louis and the Twin Cities.

What Do Drive-Aways Cost?

The cost of drive-aways varies with different dealers. One Chicago dealer declares he is driving his cars overland from Detroit at less than what it costs him for freight on the railroad; another dealer driving a car of no larger size declares that it costs just twice what railroad freight costs. There should not be such a difference. Both seem to have standardized their system of drive-away and are operating on military principles, but there must be a leak in one.

Both admit they would liberally contribute to the movement that would improve the highway between Detroit and Chicago. Both admit that they must have cars for the big spring selling season that is ahead. Both admit their respective factories have not storage room at their plants for more than a 2-day production. It seems to be imperative for the dealer to get the cars as they are manufactured, that is, he must be prepared to drive away cars during February, March and April, in order to keep the factories working at capacity during those months.

Perhaps the dealer will say the factory should provide storage facilities. This might be answered by the fact that up to this war crisis the factories never had any necessity for such storage facilities because they could rarely produce as fast as the dealer wanted the cars. To-day the reverse is the case. The slowing up of retail sales in the last 3 months means that thousands of dealers are not anxious to stock up as they were a year ago, and the manufacturer has not the ground available, in many cases, to even store the machines. It seems certain that the dealer must prepare to drive away on a regular schedule. The best dealers are already doing this. These slack business months are the ones in which to get under way. Do not wait until you are out of cars before you organize your drive-away system.

The Leader Must Lead

(Continued from page 10)

thought of our calling those good officers of ours unpatriotic because they are motorizing every part of the army and putting away the old mule that was the hero of the Civil War. We would criticize them if we did not motorize on every hand. We want our ambulances motorized so that they are more speedy and will get the wounded back to the hospital quicker. We praise our Signal Corps for making faster airplanes. We praise our Engineers Corps for using motor trucks instead of horses. We praise every one in France for using the motor instead of the horse or the mules.

Now, in war, there cannot be one rule in France and another at home.

The policies that are best in one place are best in the other. We must not require our army to move at motor pace in France and move ourselves at snail pace in America.

We must raise wheat at motor pace. We must raise and cultivate corn at motor pace. We must move our grains to the market at motor pace.

Move at Motor Pace

We are unpatriotic if we do not move at motor pace.

Why demand our soldiers to speed up and put up with all of the other sacrifices of war in France and in our cantonments, and we at home go along in our old mule pace methods and not supply enough wheat, enough oats, enough corn, enough potatoes and enough hay and other war necessities?

No, Mr. Distributer, the White Man's burden rests upon you. *A share of the burden of civilization rests upon you.* You must drive this war patriotism into your country dealer. You must drive this war patriotism into your country banker. You must drive

this war patriotism into the farmer. You must drive this war patriotism into every business man, into every manufacturer, into every commercial man.

It is not *unpatriotic* to-day for the farmer to buy a motor car. It is not *unpatriotic* to-day for the farmer to buy a motor truck. Thank Heavens, the farmer is nearly getting it under his skin that it is the highest form of patriotism for him to buy a farm tractor. We hope the time is at hand when it will be looked upon as a sign of sloth, of inefficiency of unprogressiveness for a farmer not to own a car, a truck and a tractor.

The country dealer must not lie down in these hours of real need. He has to sell cars. He must sell them. The distributor must stimulate him. If the distributor is to rank as a territorial leader he **MUST LEAD.**

Chicago Reveals Several New Models

Deering, Chalmers, Reo
Pan-American, Jordan
Comet, Maibohm, Briscoe

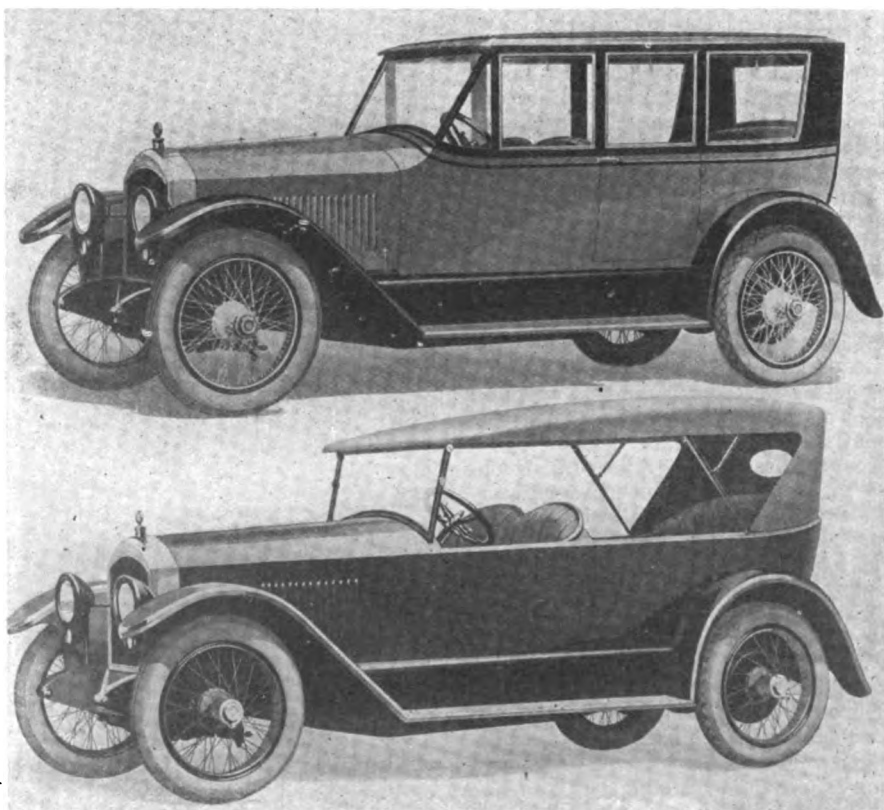
DURING the week of the show the new Deering magnetic made its debut at the Congress Hotel. This car is to be produced in 4 different types for the 1918 season, including a 7-passenger road car, an all-season sedan, a 4-passenger sport roadster and a coupe. It was impossible to get the last two ready in time for the show and so only the 7-passenger car and the sedan were exhibited. No definite announcement as to prices has yet been made, but it is understood that the 7-passenger road car will sell at \$3,950.

A 6-cylinder engine is used, of the overhead valve type, the valves being enclosed and the cylinder heads removable. The engine was specially designed for use in this car by George P. Dorris, one of the pioneers of the American automobile industry. It has a bore of 4 and a stroke of 5 in., and though its S. A. E. rating is only 38 hp., actually, it develops 70 hp. In order to eliminate all chance of whipping, both crankshaft and camshaft are supported in 7 bearings. A hot spot type manifold is employed, which is said to be of such design that although it ensures thorough vaporization of the fuel it will not expand the air to such an extent as to excessively reduce the volumetric efficiency. The engine, of course, has been especially de-

signed for the use of the Entz magnetic transmission system.

A plain pressure feed lubricating system has been adopted for the new en-

gine. All bearings, including those on the crankshaft, in the connecting rod and on the wrist pin, as well as the cylinder walls, are positively lubricated by pump-

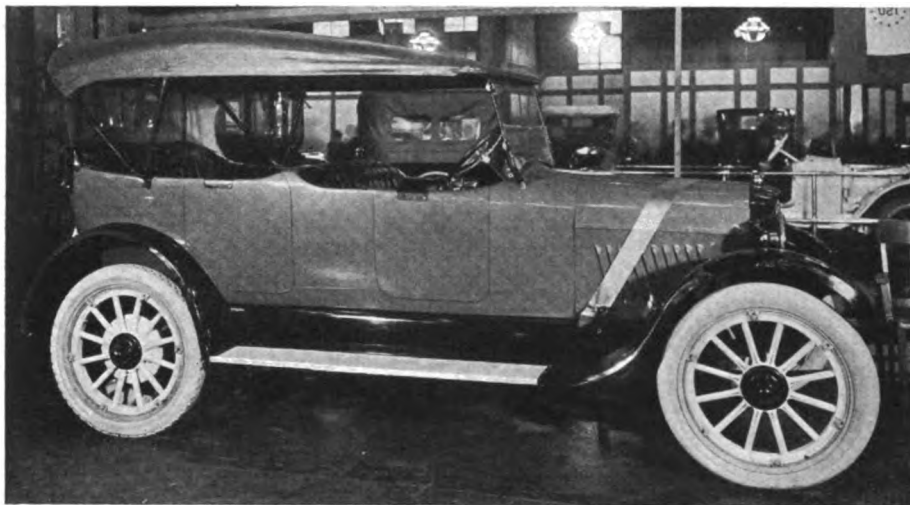


This good-looking car is the new Deering-magnetic which has a Dorris engine and is fitted with the Entz electric transmission

revolving parts returns to the reservoir through a filter and is used over and over until its lubricating properties have deteriorated. A circulation indicator located on the instrument board gives a visible indication of the functioning of the oiling system.

As the new Deering magnetic is in the high-priced class, much attention has, of course, been paid to body design. Both the 7-passenger road car body and the all-season sedan are designed by Karl Martin. The road car is finished in Mist O'Marne blue, with wire wheels, fender gas tank and running gear painted red

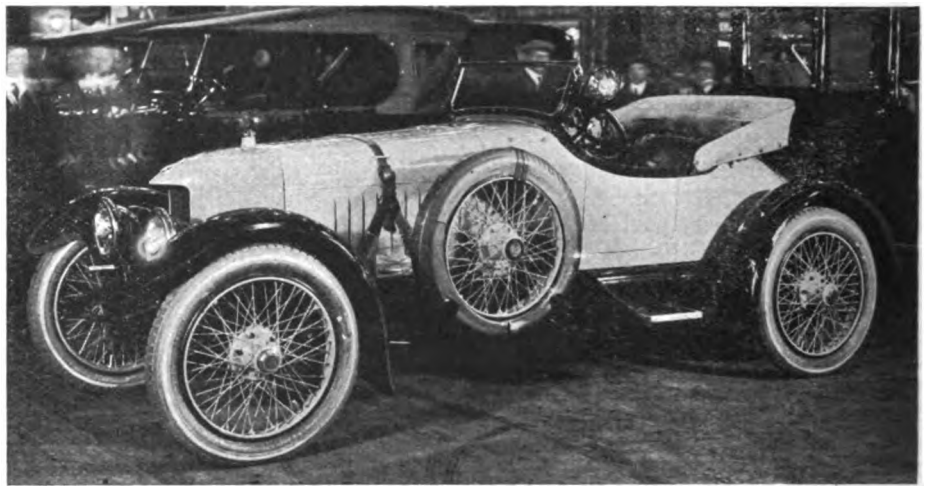
Below—The new Reo Four has a somewhat refined body and is lower than the previous model owing to a new spring suspension



for contrast, and the upholstery is in black hand-buffed leather. The backs of the front seats extend above the center cowl, making for increased comfort and individuality of appearance. On the instrument board are mounted two ammeters, a speedometer, an oil gage, lighting switches and a combination dash and inspection lamp. The equipment of the Deering Magnetic includes a Maxim silencer, a Moto-Meter, an engine-driven tire pump and 33 x 5 in. Goodyear cord tires on Rudge-Whitworth wire wheels.

As regards the control devices, the throttle and spark levers are located on the steering post just below the steering wheel, on which the control lever for regulating car speed is carried. The emergency brake and reversing levers are located to the left of the operator, thus leaving the driver's compartment unobstructed.

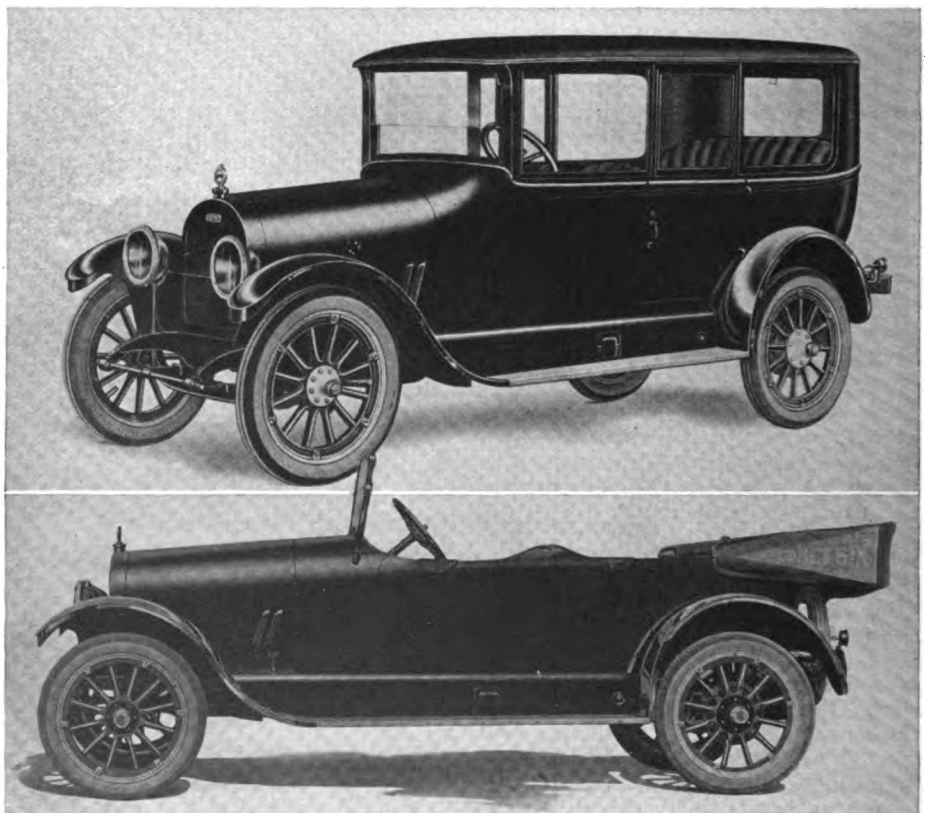
The 5-passenger sedan, with two auxiliary chairs of the disappearing type, is finished in two-tone mole skin with black fenders, wheels and running gear. The upholstery of mole skin velour mohair extends only to the window line, the interior above that point being painted in a harmonizing shade and the flexible, bevel-edged roof is provided with a beamed ceiling to eliminate rumble. In summer time the glass may be dropped into the body, and seat covers used to protect the interior against dust and rain.



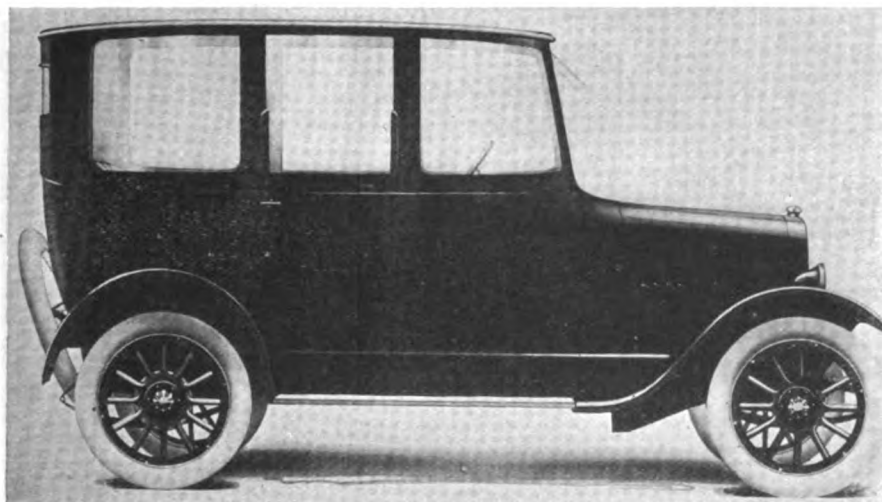
Above—This snappy looking roadster is a new design that was exhibited by the Chalmers company. It is what might be termed an ultra-sport model

Comet Six at \$2,285

THE Comet, which is made by the Comet Automobile Co., Decatur, Ill., is a six-cylinder car developing 50 hp. at approximately 2400 r.p.m. The cylinders are cast in block. Bore and stroke are 3½ x 5 in. Lubrication is by combination force feed and splash with individual constant level trough for each crank. Intake ports cast in the exhaust manifold provide for preheating the gas mixture before entering the cylinders. Cooling is by a centrifugal water pump with large cellular radiator and ample water-



Here are two new Comet models



Briscoe had on view an entirely new sedan model, which, from its appearance gives the suggestion of a utility car, light on its tires, quick to get around and having an unusual expanse of windows

moved from its steel cradle, and the large turnbuckles make brake adjustment a simple matter.

Hotchkiss drive is used. The power is transmitted through two 4½-in. universal joints and a tubular propeller shaft. Both sets of brakes are lined with asbestos fabric and act on rear wheel drums, 12 x 2½ in., internally and externally. A Maxim silencer is fitted and the steering gear is of the Jacox, split-nut type. A 17-in. notched-grip hand wheel carries the spark and gas quadrant and horn button.

The rear axle is full floating, with 1½ in. shafts, a Brown-Lipe-Chapin differential and Hyatt roller bearings. Two Bock taper roller bearings are in the third member, which has an external adjuster. The gear ratio is 4.5 to 1. The front axle is a drop forging of 2-in. I-beam section.

All springs are semi-elliptic, the front ones being 36 x 1½ in. and the rear ones 49 x 1½ in. All three cross girders of the frame are straight. Wheels are artillery type with Stanweld rims. Houk wire wheels cost \$100 extra for the set of five. The tire equipment is Goodyear, 32 x 3½ in. The wheelbase is 115 in., the road clearance a full 10½ in., and the complete car weighs 2375 lb. The price of both four-passenger and six-passenger touring models is \$975 at the factory. Finish is optional with the purchaser.

The six-passenger job is long, low, narrow and rakish in appearance. The body does not project into or over the rear fenders, which extend a full 10 in. on each side. There are two folding auxiliary seats in the tonneau. The khaki top is of Victoria shape. Gypsy curtains completely cover the top bow sockets, and have a round, bevel-edge plate glass curtain window in each side. There is an oval plate glass window in the rear.

Auburn Sport Model

ONE of the new cars at the show is the Auburn Sport Model, equipped with a six-cylinder engine and mounted on a 120-in. wheelbase. This car is an unusually roomy four-passenger and has the front seats divided by a wide aisle. The upholstery is leather, done in the flat French pleat style. The straight-line body design has the windshield placed at quite a pronounced angle. The chassis follows the general Auburn construction with such features as semi-elliptic springs, the unit power plant, etc. The wheels of this car are wood, fitted by 32 x 4-in. tires. The Auburn Sport Model is offered in three striking color schemes, ash gray body, fenders and wheels, Auburn maroon body and wheels with black fenders, royal blue body and wheels also with black fenders. Good attention has been paid to details. There is a locker under the rear deck to which access is gained by removing part of the rear seat upholstery, which comes out in a rectangular block form. Thus it is possible to conveniently carry packages in this compartment. The price is \$1,395. To meet the demand of those who want extra large power and high speed the Auburn Sport Model is built on a large

jacketing. A roller bearing fan with five double blades is used.

Starting and lighting are by the Dyneto two-unit system with Bendix drive to the flywheel. Ignition is Delco. A multiple-disk, dry-plate clutch is used, and the three-speed gearset is in unit with the engine. Two universals take the drive through a tubular propeller shaft to the rear axle.

The front axle is an I-beam type with Elliott knuckles. A three-quarter floating rear axle is fitted, the gear ratio of which is 4½ to 1. Hyatt and Bock bearings are used in pinion shaft, differential and wheels. Brakes are internal and external on rear wheel drums. Semi-elliptic front springs, 2 x 36 in., and cantilever self-oiling rear springs, 2½ x 50 in., are used.

The frame is pressed steel, heat-treated, with a kick-up over the rear axle. All cross members, gussets, hangers, etc., are hot-riveted. Wood wheels with 33 x 4 tires are fitted; wire wheels are optional. Firestone demountable rims are stock. The wheelbase is 125 in., and a road clearance of 10½ in. at the lowest point is given. A 22-gal. gasoline tank is mounted under the frame in the rear with a sight gage and large end filler.

Standard equipment includes headlights with dimmers, cowl light and tail light, windshield searchlight and trouble lamp, electric motor-driven horn, locking switch, Stewart-Warner speedometer, ammeter, etc. The body is a streamline, double-cowl type with high body sides and upholstery in Chase's long-grain, bright finish Galloway. The windshield is a slanting, rain-vision and ventilating type, and the top is of Never-Leak, one-man with Jiffy curtains and slip cover. Standard color is blue with black radiator, fenders, hood and skirts. The price is \$1,285.

Maibohm New Six

THE Maibohm six-cylinder, six-passenger sport phaeton is one of the few entirely new models revealed at the Chi-

cago show. This car is the product of the Maibohm Motors Co., Racine, Wis., which has hitherto specialized on a four-cylinder sport roadster. The six on exhibition is finished in powder blue with khaki top.

The car has a valve-in-head 3½ x 4½ in. Falls engine. It has a detachable cylinder head. A Wyman & Gordon counterbalanced crankshaft, 2½ in. in diameter, with three 2-in. bearings, is used. Valves are 1½ in. in diameter and lift 9/32 in. The valve adjustment is at the cylinder head and directly accessible. The Stewart vacuum tank is supported on brackets in an elevated position so that there is no interference with the adjustment of any of the valves. The engine is rated at 23.44 hp. but develops 40.6 hp. at 2290 r.p.m. Its maximum speed is 3510 r.p.m.

On the left side of the engine are located an oil gage and filler, the electric generator driven through a self-aligning universal-joint type coupling and the ignition distributor, the latter an independent unit on the rear deck of the crank case, thus permitting a simple wiring layout. There is also a simple fan belt adjuster. Both manifolds are cast integral with the cylinder head, making for simplicity of pipe connections.

An instrument board plate carries all necessary connections and is installed with four wood screws. The equipment consists of a Wagner two-unit, six-volt starting and lighting system, Atwater-Kent ignition, Willard battery, Stromberg carbureter, Perfex radiator for thermo-siphon cooling, Borg & Beck clutch and Mechanics three-speed transmission, the latter forming a unit with the engine. By overhanging the lever of the transmission they are brought within easy reach of the driver. A worm and pinion speedometer drive is enclosed in the transmission case and drives the Stewart 60-mile speedometer.

The storage battery and the adjusting turnbuckles on both brake rods are located directly under the front floor boards. The battery is thus easily re-

chassis, with 131-in. wheel base. Price, \$1,685. These cars are products of the Auburn Automobile Co., Auburn, Ind.

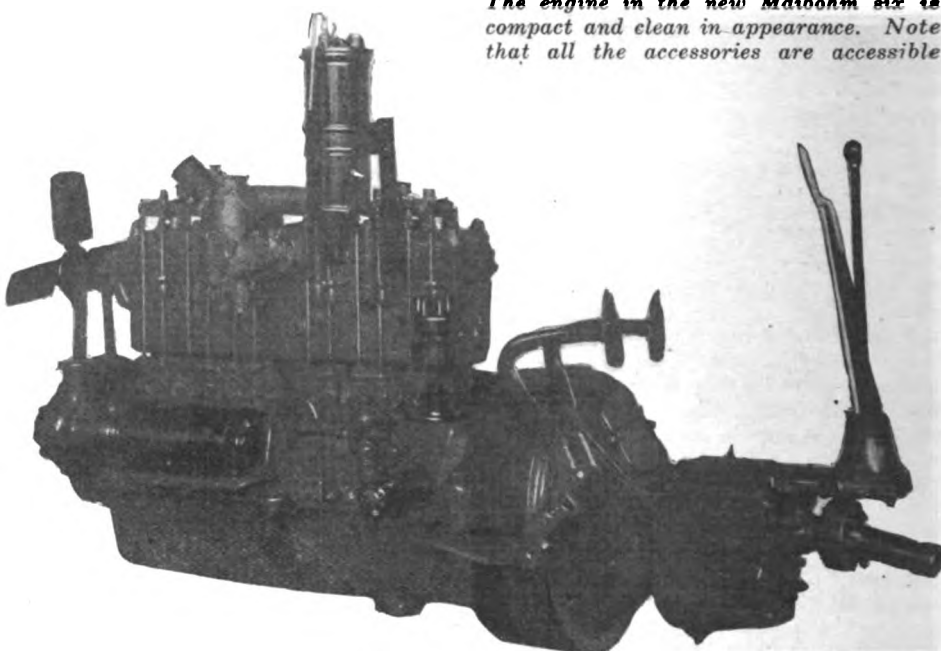
Three Hackett Models

THE Hackett Motor Car Co., Jackson, Mich., exhibits three models, all using the same chassis. They are two-passenger roadster in olive green, five-passenger touring in brown, and collapsible sedan, finished in maroon. This concern exhibits one of the new Guy rotary valve engines with which the Hackett line is to be equipped later on. The valves are disks with only one surface in contact with the seat, requiring that only one surface be kept tight. For this reason also the valve is free to expand and compress without danger of binding, it is claimed. The valve driving mechanism is by means of spur gears which are attached directly to the stems of the valve and driven by a small master gear. The latter drives the two middle gears attached to the two middle valves, and these in turn operate the outer cylinder valves by being in mesh with them. The disks which constitute the valves are cut with eight ports, which means there are four intakes and four exhausts per cylinder. There are only three working parts to each cylinder. The gears operate in a bath of oil and are noiseless. The valve driving mechanism operates 1-8 crankshaft speed, and due to the rotating motion of the valves the latter are said to be self-grinding, thus making them carbon proof. The top of this engine has an aluminum head plate, the removal of which exposes the valves. The Hackett chassis has a 112-in. wheelbase and has a unit power plant. The engine in the present model is a four-cylinder design, having a bore of $3\frac{1}{4}$ in. and stroke $4\frac{1}{2}$ in. Hotchkiss drive is used. The gears in the rear axle are of the bevel type. Wood wheels are standard equipment, carrying $32 \times 3\frac{1}{2}$ -in. tires. Connecticut ignition is used. Starting and lighting equipment is the Dyneto two-unit system. The radiator is cellular and cooling is by thermo-syphon. The gearset is a three-speed Grant-Lees. The drive to rear axle is through two universal joints. The equipment on the Hackett consists of a one-man mohair top sloping windshield, trouble light, tools, pump and jack. There is a neat walnut instrument board in the cowl, carrying lighting and ignition switches, ammeter, speedometer, oil indicator, carbureter, adjusting dial, instrument light and trouble light plug.

The roadster and touring car sells for \$885, while the all-season car or open sedan is priced at \$1,165.

Elgin Six Sedan

THE Elgin Six Sedan exhibited by the Elgin Motor Car Corp., Chicago, is of the Springfield type, having two doors, one on each side, and constructed so that it can be entirely closed for winter or open for summer. The chassis is the same as used on previous models. The interior is upholstered in Bedford Cord, up to the belt line with



The engine in the new Maibohm six is compact and clean in appearance. Note that all the accessories are accessible

a lighter weight material above. Ample room has been provided for seating five people. The front seats are the bucket type, with passageway between. The cushions are covered with gray striped whipcord without buttons. Plate glass is used in the doors and windows. Silk curtains are provided for rear and rear quarter windows. The steering wheel can be adjusted so as to bring it out of regular driving position, providing plenty of room for the driver in getting to and from his seat. The floor is covered with brussels carpet and held in place by snap fasteners. There is an electric dome lamp located centrally for lighting the interior. The Elgin Six Sedan is regularly finished in black with silver striping on the body and wheels. The price of this car is \$1,645.

Reo Light Four

A NEW car shown for the first time at the Chicago show is the light four Reo, offered in both five-passenger touring and three-passenger roadster models by the Reo Motor Car Co. The bodies of these follow the latest tendency in design and have the top sides tumbling home. Both cars use the same chassis, which has a 120-in. wheelbase. The frame is of the conventional pressed steel type, mounted front and rear on semi-elliptic springs. The rear springs are especially long, being 54 in., with 10 leaves. The engine is rated at 27 $2/10$ hp. and has a bore and stroke of $4\frac{1}{4} \times 4\frac{1}{2}$ in. The cylinders are cast in pairs with integral heads. Valves are of the pocket type, with inlet and head and exhaust on right side, which is the conventional Reo practice. The main bearings are babbit and the bearings are adjustable from the outside. The camshaft is forged integral and driven by helical gears. The engine is four-point, suspended on a sub-frame. The carbureter is a Johnson, fitted with steering column air control. Ignition is by jump spark, supplied by Remy generator,

which also furnishes current for lights and starting. The latter system is of a six-volt type, using a Willard 100-amp.-hr. storage battery. Cooling is by gear-driven centrifugal pump.

From the engine the drive is through a dry plate clutch and three-speed gear set. The drive is Hotchkiss, the gear reduction from engine to rear wheels on high being 4.3 to 1. The rear axle is semi-floating and driven by spiral gears. The steering gear is on the left side, with adjustable bevel gear and internal sector and pinion type reduction. The diameter of the steering wheel is 18 in. The standard color is marine blue body, cream wheels, and black fenders and running gear. The five-passenger touring has a one-man top with curtains and slip cover. The upholstery is of leather over Marshall cushion springs. Removable lights in the rear of the top provide for ventilation and easy renewal of celluloid. The roadster body has three-passenger capacity on one seat. It is furnished with foot-rail and detachable curtain supports on both doors and has extra large luggage space, with a door at the rear. The windshield is slanting and fitted with rubber window strips at center and bottom. The tank capacities are: Gasoline, 18 gal.; water, $3\frac{1}{4}$ gal.; oil, 3 qts. Regular equipment is furnished, consisting of speedometer, ammeter, tools, etc. The price of the touring or roadster model is \$1,225.

Three Pan-Americans

THE Pan-American Motors Corp., Decatur, Ill., exhibits three cars and a chassis. Beside the regular five-passenger touring car there was a four-passenger close-coupled car and a four-passenger sedan. All of these models use the same chassis, which is powered with a six-cylinder Pan-American Rutenber engine. The cylinder size is $3\frac{1}{4} \times 5$. The standard wheelbase is 120 in. and the cars have $10\frac{1}{2}$ road clearance. Hood regularly fitted, but the cars shown all

carry Houk wire wheels, which come extra. Gasoline is served to a Rayfield carburetor by a Stewart vacuum tank, drawing from a 20-gal. tank on the rear of the car. The main tank has a large filler cap with gage and drain plug at the bottom.

The frame has a double kickup at the rear and is reinforced by four independent cross members, which with the rear engine support are said to eliminate all frame torque, body squeaks, and climbing hood. Springs are all semi-elliptic, with the rear 58 in. long, underslung and suspended directly under the frame. There are wick oiling devices for all spring shackle bolts, also for the steering knuckle pins. The drive from the engine is through a Borg & Beck clutch to a Warner gearset in unit with the engine. The propeller shaft is tubular and fitted with two universal joints. Both front and rear axles are Timkens fitted with roller bearings throughout. The brake drums are 14 in. in diameter and of the conventional type. The steering gear is a Warner having an 18-in. corrugated walnut wheel, with horn button and control levers on top. Tires are 33 x 4½ in. The electrical equipment consists of a six-volt Gray & Davis system for starting, lighting and ignition. The storage battery is a Willard. The head lamps are fitted with dimmer bulbs and there is a mahogany cowl board containing lighting and ignition switches, fuse box, oil gage, ammeter and speedometer dials, carburetor control and dash lamp. The head lamps are fastened directly to the fenders with a liberal tie rod with license clamps. The fenders are full crown type bolted together as a unit. The purchaser is given a choice of four colors, Pan-American maroon, gun metal gray, Pan-American blue and a new military brown. The price of the Model G is \$1,500.

Dodge Town Car

THE Dashiell Motor Co., Chicago, exhibits a town car body on a regular Dodge chassis. This body was designed primarily to meet the demand for a neat appearing and medium priced vehicle of that type. The body is finished in red up to the belt line, with the remaining parts black. The interior was upholstered in a very thorough manner.

New Chalmers Speedster

A CAR which attracts unusual attention was the raceabout exhibited by Chalmers Motor Co., Detroit. This car was a duplicate of the one in which Joe Dawson established a new 24 hr. record at Sheepshead Bay, N. Y. last fall. Essentially the chassis of this car is the same as used on all Chalmers models, with the exception that the engine is placed a little farther back. The body of this car is made of aluminum and fashioned after such a manner to reduce wind resistance as much as possible. The car shown is finished in yellow with black running gears and wire wheels. An option is given as to the color, inasmuch as only 25 of these cars are to be made.

One of the novel features on this car is the way in which gasoline is carried to the carburetor. The main tank is located under the rear deck, while a smaller tank feeds by gravity to the carburetor. In order to get the fuel from the large tank to the smaller, a nickel-plated hand pump is placed on the instrument board in front of the passenger seat and by a few strokes of this pump sufficient pressure is put into the main tank to force the gasoline through the carburetor. The standard gear ratio is 3 to 1 and it is claimed the car can attain a speed of 80 m.p.h. There is a metal shield over the radiator tapered in such a way to reduce the amount of air striking the cooling surface. Equipment includes six wire wheels, the extra two being mounted one on each side of the car. There are no running boards, the fenders simply following around the wheel and ending just below the frame edge. One of the new equipments on this car is a glass-protected card attached to the instrument board carrying the signature of Dawson. This card sets forth the fact that the car is an exact duplicate of the one which performed at New York as stated above. There is also a unique khaki top which when up blends well into the general lines of this speedster design.

Larger Jordan Sport-Marine

A NEW show model is the Jordan Suburban, which is really a larger edition of the Jordan Sport-Marine, but with seven-passenger capacity. It is mounted on the standard 127-in. wheelbase, but the body design is so worked out that a heavily raked steering column is used. The chassis is 2 in. lower than the standard Jordan chassis, accomplished by improved spring suspension, and the body is 3 to 4 in. lower. It is sold in two color options, namely, Liberty blue with black running-gear and Brewster green with black running-gear. As a complete seven-passenger job it sells at \$2,375, this figure including complete equipment, consisting of 33 x 4½ Firestone cord tires, wood wheels, Burbank top, clock, tonneau light, traffic bumper, Macbeth lens and extra tire and rim. Production will begin Feb. 1.

Many Chicago Show Dinners

CHICAGO, Jan. 26—The Chicago show is more prolific in dealers' meetings and dinners than the New York show was, the following having been scheduled to date. There probably will be others arranged before the week is over.

Chicago Automobile Trade Association luncheon, addressed by E. LeRoy Pelletier, Lexington Hotel, Jan. 26.
Cole Motors Co., luncheon at Congress, Jan. 30.
Franklin Auto Co., luncheon at Congress, Jan. 30.
Elgin Motor Car (dealers) luncheon at Sherman, Jan. 30.
Elgin Motor Car Co. (parts mfrs.), luncheon at Sherman, Jan. 30.
Illinois Oldsmobile Co., luncheon at Congress, Jan. 30.
Velle Motors Co., luncheon, Hotel Sherman, Jan. 30.

Dodge Bros., luncheon, Blackstone Hotel, Jan. 30.
American Truck & Airplane Co., banquet at Morrison, Jan. 30.
Nash Distributors, banquet at Sherman, Jan. 30.
Reo Motors Co., luncheon, Congress, Jan. 31.
Paige-Detroit Motor Car Co., luncheon, Congress, Jan. 31.
Harry Newman-Stratton Co., luncheon at Congress, Jan. 31.
Hupp Motor Car Co., luncheon, Blackstone, Jan. 31.
S. A. E. War Dinner, Morrison Hotel, Feb. 1.
Federal Export Corporation, headquarters.

Salon Shows Body Styles

CHICAGO, Jan. 29—Chicago's Automobile Salon opened Monday in the Elizabethan room at the Congress with exhibits of special body creations by White, Cunningham, Rolls-Royce, Daniels, Apperson, Biddle, Roamer, Deering-Magnetic, Simplex and Locomobile. The bodies are by Rubay, Cunningham, Brooks, Daniels, Apperson, Caffray, Keystone, Martin, Holbrook, Healy and Lock. Prices range from \$3,500 to \$14,000, the latter being for a Rolls-Royce touring cabriolet. The show, by special dispensation, remained opened both Monday and to-day, despite to-day being a closing day for theaters. The show at the Coliseum was closed Monday, but the Chicago Automobile Trade Association notified members that service stations and salesrooms might remain open under special Government order.

Hayes Heads Jackson Munitions.

JACKSON, Jan. 28—Clarence B. Hayes, of the Hayes Wheel Co., has been elected president of the Jackson Munitions Co. A strong directorate has been brought together, including O. W. Mott, C. C. Bloomfield, Dean Kimball, B. M. Delameter, M. S. Potter, Edward Frensdorf, Watson R. Smith, John W. Miner and A. G. McBurney. The company is capitalized for \$500,000.

Deeds is Promoted

WASHINGTON, D. C., Jan. 28—Col. E. A. Deeds, in charge of the equipment division of the Signal Corps has been promoted to be assistant to the Chief Signal Officer and now has his office headquarters with the Chief Signal Officer. Col. R. L. Montgomery, formerly the assistant to Col. Deeds, has been promoted to become the head of the equipment division and is assisted by W. C. Potter, banker of New York City, a civilian appointed as assistant to Col. Deeds.

Lilly is Embarkation Director

WASHINGTON, D. C., Jan. 28—Brigadier General Chauncey B. Baker of the Quartermaster Corps has been relieved of certain duties connected with embarkation by the appointment of D. M. Lilly of New York as Director of Embarkation. General Baker is the Chief of Embarkation in addition to heading the truck transportation work, which latter is not in any way affected by the appointment of Mr. Lilly.

"Business" the Slogan of Buffalo War Show

**Dealers Report Many Sales and
Prospects—Expect Big Rush
in Early Spring**

BUFFALO, Jan. 26—Buffalo's first war-time show made good. Held in the Broadway Auditorium, the largest hall of which the city boasts, from Jan. 22 to 26, inclusive, it was not the most interesting and brilliant socially nor the best attended in total number of admissions for the week, but it certainly was the most business-like show ever held here. What it lost in the sight-attraction of show features the exhibition gained in the newer appreciation of the automobile as an essential instrument of commercial, business and social life.

The dealers who had exhibits at the show declare it was a success. All reported sales and all listed the names and addresses of scores of prospective purchasers.

More than the ordinary amount of worries attended the organization of this sixteenth annual exhibition of automobiles, trucks and their accessories. Just before the show was decided upon there swept across the country a feeling that the automobile was an unnecessary purchase during the war and there was an inclination to regard the automobile industry as among the non-essentials, a feeling that was gradually overcome by the realization of the value of the use the automobile plants, either in whole or in part, for the manufacture of the motors and other parts of the 20,000 airplanes the United States proposed to build in the first year of the war. The Government then began to encourage the making and buying of automobiles and the motor truck was looked to as offering relief from the rapidly-congesting railroad situation.

Mason B. Hatch, president of the Buffalo Automobile Dealers' Association, and his associate officers and directors decided to face the situation as it was expressed locally and hold the show. The public caught the new meaning of the automobile. They began to buy at the local salesrooms. The show then promised to be a record-breaker.

At the last moment before the opening of the show the Garfield war-time vacation order was imposed and it was necessary to fight hard for the privilege of holding the show. The privilege was granted, however, with the concession that there would be a postponement of the opening date from Monday to Tuesday.

While the older makes of cars came in for all the attention they deserved, unusual interest was displayed at the show in the exhibitions of new cars, such as the Holmes, the Standard, the Elgin, the Stanley steam and the remarkable novelty body on a Chalmers chassis, the submarine model.

The little caterpillar crawl farm trac-

tor from a Cleveland firm held the interest of many, particularly, of course, those to whom its utilitarian purpose appealed. Prospects of big business when weather will permit of thoughts of operation of the farm tractor were claimed by the exhibitor.

Accessory exhibitors report good business from the show, though exhibitors were forced to admit that the minds of present and prospective car owners were less than ever directed to the fads and "wrinkles" in their line of goods.

"There should be a splendid spring business as a result of the exhibition," said John J. Gibson, the secretary of the dealers' association, the closing night, and he reflected the optimism of the other local dealers.

Green Heads Denver Dealers

DENVER, Jan. 17—The annual meeting of the Denver Automobile Trades Association, just held, resulted in the election of the following officers for this year:

President, Fred L. Green, of the O'Meara-Green Motor Co.; first vice-president, J. C. Hadley, of the Auto Accessory & Speedometer Co.; second vice-president, Henry J. Arnold, of the Altitude Oil Co.; treasurer, Ralph Hay, of the Peters-Tucker-Hay Rubber Co.; secretary, Edgar W. Johnson, who succeeds himself. The first three of these officers and the following were also elected directors for two years: P. V. Downey, of Downey's Garage; Hugo Mann, of the Mann-Aldrich Carriage Co. The four hold-over members of the board of nine directors are: B. K. Sweeney, of the B. K. Sweeney Electrical Co.; C. S. Norton, of the Norton-Buick Auto Co.; L. R. Bach, of L. R. Bach & Co., Exide battery distributor, and Treasurer Hay.

A substantial growth in membership and activities for improving trade conditions and a successful fall show were among the year's accomplishments outlined in Secretary Johnson's report. The membership has now reached the 150 mark, and the association's influence is felt throughout a wide trade circle. The cash basis has recently been taken up, and a good start is being made in this direction.

Organized three years ago as the Automobile Trades Association of Colorado, with plans for State-wide development, the body later became a bureau of the new Denver Civic and Commercial Association, which was formed by re-organizing and consolidating several commercial bodies.

Hydraulic Gearshifts Coming

EAU CLAIRE, WIS., Jan. 26—The United States Gear Shift Co. has been formed here with \$1,500,000 capital to manufacture a hydraulic gear shift which is the invention of L. A. Laursen. It is proposed to erect a factory here and to commence production within six weeks. The device is intended for application to existing cars without extensive alterations.

Show Time Changes Baltimore Motor Row

**Indications of Dealers' Faith
in Future of Industry—
Optimism Reigns**

BALTIMORE, MD., Jan. 28—Quite a few important changes have taken place along motor row in Baltimore just as the show got under way. It involved changes of agencies and also the advancing of some salesmen to important positions during the past week. Some steps taken locally show very plainly that motor car men of this city have faith in the future of the industry and are not worried about doing business, but are going out and getting it.

One of the most important local announcements was that of the promotion of Earle L. Williams as general manager of the Packard Motor Car Co. of Baltimore. Williams is the youngest Packard manager in the United States. He started in with the Mar-Del Mobile Co. in 1911 as a stock clerk.

One of the biggest deals affecting the distribution of motor cars in this section is that announced by the Del-Mar-Va-Nach Co., as southern distributor of the Nash Motors Co., and the firm will distribute in Maryland, Delaware and Virginia and also expects to obtain the District of Columbia about June 1. It has obtained temporary quarters at 126-188 West Mt. Royal Avenue, pending the signing up of a local dealer. E. McNeal Shannahan of Easton and Graham Gunby of Salisbury have formed the new company.

The Rice Motors Co., Baltimore, that has handled the Jeffrey and later the Nash line for some years will now devote its time to the Simplex and the Clydesdale motor trucks, and its plant has been enlarged to handle truck service. The Wandeyne Co., Inc., with headquarters in Washington, has come into Baltimore and has taken over the business of the Murray Motor Car Co. here to handle the Murray line.

The Hummer Motor Sales Co. will handle the Lexington line in this territory, succeeding the Hampden Auto Sales Co., E. E. Wilmer of that company having joined the forces of the Seitz Auto Co.

H. H. Juelg, for many years identified with the piano business in Baltimore and Washington, has joined the sales force of the Howell Motor Co. The Howell company has also taken on the Woods Dual Motor.

J. Wilfred Smith, who has been handling the Monroe line and also conducts a garage on Morton Street, will leave next week to enter the Royal Flying Squadron, going to Canada. His wife will continue to look after the business.

William E. Duck, Jr., of the local Firestone Truck Tire sales force and son of W. E. Duck, local Winton manager, will leave with Mr. Smith to go into aviation.

The Seitz Motor Co., which handles the Velie passenger line and the Service truck, has become state distributor for Troy trailers.

The Zell Motor Car Co., handling the Peerless and Chalmers, has also decided to handle Peerless trucks.

F. S. Bliven, president of the Standard Motor Car Co., Cadillac distributor, has become distributor for the Cleveland tractor.

The Monumental Motor Car Co., Kissel distributor, has added the Hurlbutt motor truck. The Monumental company also announces the taking over of the Jenkins Garage as a service station.

Louis E. Lambert of the Lambert Automobile Co., Hudson distributor, showed his faith in the future industry when he announced last week that he had decided to put up a fine service station in the Northwestern section of the city. This station is located in one of the best residential sections of the city and near the best traveled route of the city.

Danner Heads Pan-American

DECATUR, ILL., Jan. 26—After a bitter conflict for control of the Pan-American Motors Corp., Edward Danner was chosen president and a friendly board of directors elected. Early in December A. H. Wyatt, the former president, was removed by the directors on the charge of alleged extravagance in the management of the company. The winning ticket, with Danner as president, comprises the following board of directors: E. W. Danner, J. E. Strohm, W. A. Phares and C. V. Morse, all of Decatur; A. A. Duplissis and J. K. Gumpfer, both of Chicago, and Thomas Bemis, Indianapolis.

Carlisle Tire Distributor in Seattle

NEW YORK, Jan. 24—In an item which appeared in a recent issue it was inadvertently stated that the Pacific Tire & Rubber Co. is distributor for the Carlisle Cord Tire Co. in Los Angeles. This should have been Seattle, Wash. The Geo. W. Eno Rubber Co. is the Carlisle representative in Los Angeles.

Savannah Added 897 Car Owners in 1917

SAVANNAH, GA., Jan. 26—According to the registration of state numbers of motor cars with the clerk of council there are 897 more owners of automobiles in this city this year than there were in 1916. The total registration for 1917 is 2310 cars, while only 1413 were registered in 1916.

The number of motorcycles registered in 1917 was 87, while the registration for 1916 shows a total of only 55.

St. Louis Closes from 7 p. m. to 7 a. m.

ST. LOUIS, Jan. 28—The first fuel order affecting the local motor car trade was issued last Thursday, when it was expressly ordered that all motor car and accessory salesrooms must be closed from 7 p. m. until 7 a. m. The order covers garages and filling stations. In case of garages with established all-night trade, permits can be obtained from Robert E. Lee, secretary of the associations

Won't Put Industry On Losing Basis

Garfield Tells Committee of Workers He Has No Such Intention —Postpone Action 10 days

WASHINGTON, Jan. 25—Dr. Harry A. Garfield, Fuel Administrator, has no intention of placing the automobile industry, or any other industry, in a position where it will have to be operated on a losing basis. This much was brought out at a conference yesterday between the Fuel Administrator and members of the boards of directors of the N. A. C. C. and the M. A. M. A.

Practically 90 per cent of the automobile industry was represented at the conference, which had been called by Dr. Garfield in order to ascertain the essential character of the business with a view to reducing coal deliveries and thus curtailing production by that percentage which was deemed not strictly essential.

After the matter was thrashed out, and after it was pointed out to Dr. Garfield that the industry already has been curtailed about 30 per cent, due to the drop in demand; and that the industry is now engaged in doing about \$600,000,000 worth of government work with more in sight; and that this work will require the careful maintenance of present organizations and methods, it was decided to do nothing for 10 days.

A committee was named composed of John F. Dodge, W. C. Durant, John F. Willys, C. C. Hanch, C. H. Pelton and the members of the Automobile Industries Committee, which will again take up the matter with the Fuel Administrator. Whatever arrangements are made will be first submitted every member of the industry for final approval.

Spokane Dealers Organize

SPOKANE, Jan. 26—Representatives of practically every automobile house in the city attended the banquet inaugurating the Spokane Automobile Dealers' Association, which was organized here recently. Those not able to be represented sent greetings or some expression of their approval of the new organization. Harry Twitchell of the John Doran Co., Packard and Hudson distributor, was the unanimous choice for president.

Around the banquet table 32 were gathered. The banquet was held at the Davenport Hotel, and among those present were: E. B. Snyder (King), John Doran and Harry Twitchell (Packard and Hudson), H. M. Eastman (Cadillac and Hupmobile), E. C. Finlay (Buick), D. D. Skinner (Elgin and Stearns), W. W. Winterson (Winton), R. L. Strickle (Oldsmobile), W. H. Barnes (Mack trucks), D. E. Ahrens (Stephens), O. E. Logan (Chalmers), R. L. Borgardus (Spokane Auto Market), Frank A. Vogt (Sterling and Gary trucks), Geo. W. Armstrong (Armstrong, Barclay

Auto Co.), D. F. Batcheller (Studebaker), H. C. Farnham (Stutz and Columbia), H. Berg and P. W. Lynch (Automobile Clearing House), Guy E. Riegel (Dodge), A. C. Salnave (Paige), A. M. Highhouse (Crow-Elkhart), C. P. Brewer (Saxon, Cole, Westcott), T. J. Riley and John Coulton (Chevrolet and Chandler), George Beverly (Moon and Scripps-Booth), Floyd J. Logan and P. C. Gartley (Maxwell), Thad. S. Lane, president Inland Auto Club; Fred Alspaugh, treasurer of the new dealers' association.

Nashville Dealers to Do Business on Cash Basis

NASHVILLE, TENN., Jan. 26—The Nashville Automobile Dealers' Trade Association has adopted the cash basis in an endeavor to make business conditions better and permit it to be carried on with the present capitalization. The dealers first considered the advisability of raising the prices in their shops and garages and of changing their organization in various ways. They found that their expenses were greater than ever before and that their present capital was being worked to the limit. Adding capital would only serve to make their expenses more; hence, the decision to do business only on a cash basis. Full-page newspaper advertisements were used to make this decision known to the public, bringing out the above-cited facts. The following are the dealers that have adopted the cash basis:

Broadway Motor Co., Burton Auto Co., Chalmers Co. of Tennessee, Chandler Sales and Service Co., Cumberland Motor Co., Imperial Motor Car Co., Overland Nashville Co., Stockell Motor Car Co., Tennessee Auto Co., Ben S. Williams & Son.

\$25,000,000 Goodyear Stock Issue

AKRON, OHIO, Jan. 26—The Goodyear Tire & Rubber Co. has authorized an issue of \$25,000,000 second preferred stock which is to be sold, not to the general public through stock brokers, but to Goodyear users through the service station dealers and to Goodyear dealers themselves. Instead of a commission to a brokerage firm, the company will pay each dealer \$2 for every share sold by him. Only \$15,000,000 of the stock will be issued at present, the remainder to be held in the treasury and sold under carefully drawn restrictions. The issue is in shares of \$100 par value, bearing 8 per cent interest. They are cumulative and non-assessable, and must be bought back by the company within 10 years, at a rate of 10 per cent a year.

The Goodyear company believes that by this unusual plan, its dealers will have an opportunity, not only to make a personal investment, but to cement the relations of dealers with their customers. The present war conditions, which have caused the increase in price of raw materials, and the prospects of a still further increase, necessitated the additional financing. The company already has \$25,000,000 common stock, of which \$21,000,000 is outstanding, and \$25,000,000 first preferred of which \$23,000,000 is outstanding.

QUALITY *Makes Up For* QUANTITY at Baltimore Show

Attendance Was Lower but Interest Was
Higher—Dealers Prepare for Drive-aways

BALTIMORE, Jan. 26—Baltimore will be able to sell all the motor cars her dealers are able to bring into the territory. This was the verdict of the majority as the 1918 show held in the Fifth Regiment Armory for 5 days came to a close to-night. It was the twelfth annual show held under the auspices of the Baltimore Automobile Dealers' Association and the Automobile Club of Maryland. In point of attendance it was way below last year, only 25,000 attending compared with over 40,000 passing through the gates at the 1917 show. What was lacking in numbers was made up in a better and more interested class of people and buying was better than last year.

But the dealers are prepared for any emergency. They are willing in the majority of instances to drive their cars from the factories. Some firms have been forced to do it for sometime and are prepared to continue to do so. Others have arranged to have their passenger cars brought over the roads on trucks. This is especially true, where the dealers handle both truck and passenger cars. Accessory houses are making arrangements with firms driving trucks into Baltimore to bring along accessories and this helps to divide the cost of bringing cars over the roads.

Enthusiasm Was Rampant

There was more real enthusiasm distributed over the dealers and distributors about the show this year than was evident last year. Those who came this year talked automobiles for immediate delivery and not until spring opened. The prospect lists of the firms, which have been studied closely by men of long standing in the business, are believed to hold better business than those obtained last year.

Baltimore's show ran into some real difficulties. The snowstorm kept farmers and buyers from Western Maryland and the Eastern Shore away, the mountain roads in many spots being impassable. Consequently there were only a few county dealers at the show this year compared with last year, when much of the rural business was closed up for the season. Some of the distributors declined to sign up county men unless they would agree to drive at least 50 per cent of their cars over the roads.

After having the way cleared on Monday to open the show on Tuesday night, a big scare was thrown into the management on Tuesday, shortly before noon, when Fuel Administrator Meyer telephoned General Manager H. M. Luzius that complaint had been filed by a theatrical management that the show was

an amusement proposition and under the Washington ruling could not open. Luzius replied that it was strictly commercial and that dealers were spending \$400 and \$500 and some of them more to show their cars so they could sell motor cars to people and it was in no sense an amusement. This commercial idea was strengthened when an investigation was made at the City Collector's office, which showed that no amusement permit was taken out. But Luzius to be on the safe side did not permit the band to attend, nor was the electric light sign burned on the opening night.

There were 43 distributors showing 183 models of passenger cars. Closed cars, or the convertible type bodies predominated.

No Motor Trucks

Only passenger cars were shown this year as has been the case for several years, but the commercial car men had their show rooms ready for business during the day. They were unable to have their showrooms lighted at night because of an agreement entered into by the dealers that they would not burn current in the evening in the showrooms during the month of January.

A few weeks before the show opened W. F. Kneip, president of the Dealers Association, accompanied by W. E. Duck, of the executive committee called on some of the dealers and assured them there was going to be a show because the impression had gotten about that the government was liable to prevent it being held in the armory. Mr. Duck said the dealers were told they were not being solicited because the show would be as good as ever and would positively be held. The Stutz and Mercer cars were practically the only ones represented last year that were not in the show this year.

Buyers of cars as well as the majority of prospects appeared to be professional men and persons living in the suburbs. Many storekeepers in rural sections and the men making good money in the munition plants. These workers are having trouble getting to their plants and housing conditions, in some cases far from their work, make it advantageous for them to own their own cars.

Maryland will obtain a revenue of \$1,000,000 from its motor vehicles in 1918 is the forecast of E. Austin Baughman, motor vehicle commissioner of Maryland. He placed the licenses as follows for the 1918 year:

Passenger Car.....	79,000
Solid Tire.....	6,000
Dealer's	3,800
Motorcycle	7,600

In 1916 the receipts of the office amounted to \$565,302 and Baughman made an estimate that this would reach \$800,000 in 1917; the actual figures compiled at the close of December showed \$815,385.13. The Maryland Motor Vehicle Commissioner declares that the war is not going to have any effect on the motor car business because war has brought out the great possibilities of the motor vehicle. Baughman figures that there will be an increase of 22,000 passenger cars, 1800 trucks and 2000 motorcycles. These figures show an increase of 40 per cent in passenger car business and 60 per cent in commercial business.

Baltimore being the key to the state was never better as far as her financial condition is concerned. Munition plants, shipbuilding and steel plants have attracted thousands of skilled workers here and this has brought additional money to merchants. The Clearing House receipts broke all records showing a gain at the close of December of \$59,732,060; the 1917 figures being \$2,266,071,012, a mark, which broke all records. A Farm Loan Bank will shortly open in Maryland and there will also be a branch of the Federal Reserve Bank located here. Maryland has a population of \$1,362,807 with a land area of 6,362,240, there being 48,923 farms in the state with a property valuation of \$286,167,088, the farm products are valued at \$41,589,335; and value of live stock products is \$20,437,385, making a total valuation of farm property and farm and live stock products of \$348,193,748.

22 New Members for N. A. A. J.

NEW YORK, Jan. 25—Following is a list of new members elected to membership in the National Association of Automobile Accessory Jobbers at the New York convention:

JOBBERS

H. P. Dils & Son Co.....	Parkersburg, W. Va.
Downing Electrical Co.....	Des Moines
Duluth Auto Supply Co.....	Duluth
Elin Auto Supply Co.....	Newark
Michael Ert.....	Winnipeg, Canada
Henderson Auto Supply Co.....	Youngstown, Ohio
T. T. Hutchisson & Co.....	Wheeling, W. Va.
Northern Electric Company.....	Montreal
Wisconsin Auto Supply Co.....	Wausau

MANUFACTURERS

Advance Auto. Accessories Corp.....	Chicago
Albertson & Co.....	Sioux City
Allen Auto Specialty Co.....	New York
Bay State Pump Co.....	Boston
Phillip Brinton Co.....	Kennett Square, Pa.
Hawthorne Mfg. Co.....	Bridgeport
Motor Parts Co.....	Philadelphia
Prescott Auto Parts Co.....	Webster, Mass.
Spencer Metal Products Co.....	Spencer, Ohio
A. J. Stephens Rubber Co.....	Kansas City
Van Sicken Co.....	Elgin, Ill.
W. C. Wood Co.....	Milneapolis
X Laboratories.....	Boston

Autocar Chassis Now \$2,050

ARDMORE, PA., Jan. 26—The Autocar Co. has increased the price of the Autocar chassis from \$1,815 to \$2,050. Orders placed prior to Feb. 6 will be accepted at the old price.

What Good Is Standardization?

1—It Built 550 Sub-Chasers in 488 Days

2—It Will Build 2 Steel Ships a Day

This Story is about an S. A. E. Meeting—Read It.

NEW YORK, Jan. 26—No better example of the value of standardization can be found than in the message given by Henry R. Sutphen of the Elco Works, Bayonne, N. J., to members of the Society of Automotive Engineers at the Automobile Club of America last night.

It was standardization which made possible the production of 550 80-ft. submarine chasers in the remarkable time of 488 days. And it is standardization which is going to make possible the production by the same company of one hundred and fifty 5000-ton steel cargo vessels at the rate of two finished ships a day. More than 200 members and guests heard Sutphen's talk and others by Irwin Chase, designer of these 80-ft. chasers, W. S. Howard and Captain A. P. Lundin.

Sutphen told substantially the same story of the conception, design and construction of this fleet of submarine chasers, which is now doing duty abroad, as he told before the meeting of the Society of Automotive Engineers in Washington last spring; he told how these boats were fabricated 1000 miles from their place of assembly; how only 5 per cent of the men who did the assembly work could understand English, being French Canadians; how only 2 per cent of those men had ever previously been engaged in boat building; and how there was never a hitch in the assembly of the chasers, which were finished long before the specified contract time and which have since shown themselves worthy the American inventive genius, thoroughness and perseverance which made them possible.

Boats Are Manufactured

The manufacture—the term building is no longer applicable to the production of such fleets—of the one hundred and fifty 5000-ton steel cargo vessels will be carried on in much the same way as the 80-ft. wooden chasers were produced. Experience with these boats made plain the limitations of standardization when wood is used, because wood will not stay put as will steel.

For the first time in the history of ship building, structural steel shapes such as are used in the building of bridges and skyscrapers, are to be used in the production of ships; such shapes are to take the place of the usual steel ship plates. The design of these cargo vessels, and their method of construction, has been passed by the highest shipping and insurance authorities as equal in strength and seaworthiness to the best ships built by ordinary methods.

Already the keels of four of these ships have been laid and the production

of the fleet will be carried on in much the same way as Henry Ford produces automobiles. The various parts are to be fabricated in 48 shops scattered all over the United States. The parts will be shipped to a number of central assembly places and the ships erected by unskilled labor recruited from building, bridge building and other trades familiar with structural steel work but not necessarily at all familiar with shipbuilding. The shops that are producing the parts, in nearly every case, have never seen a completed ship of the kind that is to be built—and may never see a finished ship. More than 90 per cent of the material will be built in these structural steel shops.

Schools will be established for the instruction of workmen in assembling the ships and each man will be taught a particular detail, as is the case in Ford's plants. It is the plan to employ any man who can stand on two feet, has two arms and is healthy.

New Materials; New Methods

The whole scheme requires the use of entirely new materials and methods. Even the machinery has been thoroughly standardized. Turbine engines are to be used—a total of 225,000 hp. being required for the fleet—because turbines can be manufactured whereas reciprocating engines require to be built. It will be possible to turn out the machinery more rapidly than the hulls can be completed.

The keynote of the success of the task depends upon the accuracy of the drawings, what with parts being made in 48 different shops. This accuracy already has been demonstrated. When the first keel was laid a structural steel shape was fitted to it, and another produced in a shop more than 1000 miles distant, when laid alongside the first, fitted to a hair's breadth.

These large fabricating yards have been established and the work of producing the fleet is to be carried on with the greatest speed possible. The incentive which is driving the workmen is to be found in a motto which hangs conspicuously in every shop connected with the work: "WE WILL ALL BE ONE, 'TILL WE'VE BEAT THE HUN."

Rubber War Service Committee

NEW YORK, Jan. 22—The Rubber Assn. of America, Inc., has appointed a war service committee, representing the entire industry, with the following members: B. G. Work, president of the B. F. Goodrich Co., Akron, chairman; H. S. Firestone, president of the Firestone Tire

& Rubber Co., Akron; James N. Gunn, president of the United States Tire Co., New York; G. B. Hodgman, president of the Hodgman Rubber Co., New York; and P. W. Litchfield, vice-president of the Goodyear Tire & Rubber Co., Akron. Some of the functions of the war service committee will be to act as a point of contact between the industry and the Government; to supply information as to the ability of the industry to serve the needs of the Government in carrying on the war; to supply statistics regarding rubber; to co-operate in the standardization of specifications and products for Government use; to assist in the speedy and efficient production of Government requirements; and to put before the Government the needs of the industry at all times.

To help carry out these functions, sub-committees will be formed to represent the various branches of the industry. Among these will be committees on pneumatic tires, solid tires, mechanical goods, medical goods, boots, aircraft, gas defense, reclaimed rubber, hard rubber goods, crude rubber and kindred products, foreign trade, statistics, supplies and reports. There will be technical as well as commercial committees on the various sub-divisions, to insure a balance of attention.

Reiss Takes Carlisle Tire

NEW YORK, Jan. 28—Charles E. Reiss, Hupmobile distributor, has become wholesale distributor for the Carlisle Cord Tire Co., and will trade as the Carlisle Cord Tire Sales Co. The new company, which is not incorporated, will function as the wholesale distributor for the Carlisle company in a large part of the Eastern territory, including New York City and parts of Pennsylvania, New Jersey and Connecticut. The acquisition of the tire business will not in any way interfere with Reiss's Hupmobile interests or business.

Packard Prices to Be Increased

DETROIT, Jan. 26—Beginning March 1, the Packard Motor Car Co. will increase the factory prices of all the 3-35 models \$200, and the 3-25 models \$250. The price change is on the chassis only, all styles of bodies advancing the same amount. The prices follow:

Model 3-25 (128-in. wheelbase)		
Model	New Price	Old Price
Roadster	\$3950	\$3700
5-pass. touring.....	3950	3700
7-pass. touring.....	3950	3700
Sedan	5650	5400
Limousine	5500	5250
Landaulet	5550	5300
(Model 3-35 (134-in. wheelbase)		
7-pass. touring.....	\$4300	\$4100
Sedan	6000	5800
Limousine	5850	5650
Landaulet	5900	5700

On account of freight conditions, the company will use the drive-away plan of getting cars to their destinations, and as many as possible will be driven from the factory.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Positions

T. P. Chase has resigned as chief engineer of the King Motor Car Co., Detroit. He leaves Feb. 1.

W. E. Blaine has resigned as truck engineer for the Packard Motor Car Co., Detroit. He has been appointed a captain in the Officers Reserve Corps of the Ordnance Department and will be stationed at Washington.

E. E. Main, until recently with the Rajah Auto Supply Co., Bloomfield, N. J., has been appointed chief engineer of the Eclipse Mfg. Co., Indianapolis.

W. H. Knowles has resigned as chief engineer of the Saxon Motor Car Co., Detroit, to become superintendent of the Hale & Kilburn Co.'s plant at Philadelphia.

J. M. Crawford, formerly assistant chief engineer of the Chalmers Motor Car Co., is now chief engineer of the Allen Motor Co., Fostoria, Ohio.

Nat. Doane, Jr., formerly salesman at the Cadillac Automobile Co., Manchester, N. H., has joined the aviation branch of the Signal Corps.

Ollie E. Haupt of the Ollie E. Haupt Motor Co., St. Louis, Ford dealer, has enlisted as an officer in the aviation corps at San Antonio. Paul Schoenig of the Ford assembly plant here has been made manager.

Wesley A. Stanger has resigned as president of the Mitchell Automobile Corp. of St. Louis. He formerly was president of the Ben Hur Co. of Missouri.

St. Alexis Steiner, formerly an officer of the Velle Automobile Co. of St. Louis, has been promoted from first lieutenant to captain in the U. S. Army, and made instructor in field fortifications for the 89th Division at Camp Funston.

Frank A. Flint, sales manager for the Hudson-Phillips Motor Car Co., St. Louis, has been made assistant sales manager of the central zone for the Chevrolet Motor Co., with headquarters at Flint, Mich. He will join there B. J. MacMullen, formerly manager of the Hudson-Phillips Co.

Charles A. Ackerman, for the past three years used car manager for the New York branch of the Studebaker Corp. of America, has been appointed sales manager for the Franklin Motor Car Co. of New York, Franklin distributor. He will have supervision over both new and used car sales departments.

R. E. Benner has been made factory manager of the H. H. Franklin Co., Syracuse, N. Y. Benner was at one time with the Maxwell company as a car designer and afterwards with the Buick company.

Y. E. Stewart has been appointed sales manager of the Economy Motor Co., Tiffin, O.

F. D. Palmer has been appointed used car manager for the Reo Motor Car Co. of New York. He was formerly connected with the New York branch of the Studebaker Corp.

E. W. Martin, for several years superintendent of construction at the Ford assembly plant, St. Louis, has become manager of the Halman-Whitten Mfg. Co., 4440 Olive St., St. Louis.

W. F. Schmidt of St. Louis has been made general manager of the Packard-Missouri Motor Car Co.

N. F. Sutton, who has been manager of the General Motors Truck Co., St. Louis, for 5 years, has resigned and will conduct his own business in Portland, Ore. He has formed a partnership with W. K. Chilcott, former sales manager of the General Motors Truck Co. at Pontiac, and the concern will sell Nash cars and trucks in Oregon, Washington, Idaho, Alaska and part of Montana.

Frank J. Nudelman has been appointed branch manager of the Maremont Mfg. Co., St. Louis.

Mason P. Rumney, formerly sales manager of the Detroit Steel Products Co., has been commissioned a lieutenant in the Ordnance Department.

Alexander Churchward has relinquished his interest in the A. B. C. Starter Co., Detroit, and is no longer connected with that concern. Churchward is at present engaged in consulting work of an electrical engineering nature.

J. F. Dugan has been made production manager of the Stanley Motor Carriage Co., Newton, Mass. Dugan was superintendent of the works of the Buick Motor Co. for 5 years, and for 3½ years production manager of the Chevrolet Motor Co.

L. L. Hopkins has been appointed office manager of the Albany branch of the Firestone Tire & Rubber Co. to succeed G. E. Hoff. Hopkins comes to Albany from the Boston branch of the company, where he was in charge of the credit department.

Arthur F. Stiles, formerly assistant sales manager for the Tri-City Motor Co., Albany, has joined the Studebaker Corporation of America here.

Motor Securities

	Bid	Asked
*Ajax Rubber Co.	48	51
*J. I. Case T. M. Co., pfd.	77	80
Chalmers Motor Co., com.	3	6
Chalmers Motor Co., pfd.	50	50
*Chandler Motor Co.	72	73½
Chevrolet Motor Co.	110	112
*Fisher Body Corp., com.	25	34
*Fisher Body Corp., pfd.	75	87½
Fisk Rubber Co., com.	49	51
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	60	70
Firestone Tire & Rubber Co., com.	95	98½
Firestone Tire & Rubber Co., pfd.	95	97
*General Motors Co., com.	116	118
*General Motors Co., pfd.	96	98
*B. F. Goodrich Co., com.	43	44
*B. F. Goodrich Co., pfd.	96	98
Goodyear Tire & Rubber Co., com.	135	137
Goodyear Tire & Rubber Co., pfd.	97	98
Grant Motor Car Corp.	2	3
Hupp Motor Car Corp., com.	2	3
Hupp Motor Car Corp., pfd.	75	80
International Motor Co., com.	14	17
International Motor Co., 1st pfd.	40	45
International Motor Co., 2nd pfd.	14	23
*Kelly-Springfield Tire Co., com.	42	43½
*Kelly-Springfield Tire Co., 1st pfd.	75½	79
*Lee Rubber & Tire Corp.	13½	14
*Maxwell Motor Co., Inc., com.	26	27
*Maxwell Motor Co., Inc., 1st pfd.	57	58½
*Maxwell Motor Co., Inc., 2nd pfd.	21	22
Miller Rubber Co., com.	128	134
Miller Rubber Co., pfd.	95	96
Packard Motor Car Co., com.	86	92
Packard Motor Car Co., pfd.	90	94
Paige-Detroit Motor Car Co.	15	17
Peerless Truck & Motor Corp.	16	17
Portage Rubber Co., com.	110	114
Regal Motor Car Co., pfd.	23	23
Reo Motor Car Co.	16	18
*Saxon Motor Car Corp.	8	9
Springfield Body Corp., com. ....	..	..
Springfield Body Corp., pfd. ....	..	..
Standard Motor Construction Co.	8½	9½
Standard Parts Co.	65	75
*Stewart-Warner Speed, Corp.	49	51
*Studebaker Corp., com.	50½	51
*Studebaker Corp., pfd.	91½	95
Swinehart Tire & Rubber Co.	25	40
United Motors Corp.	24	24½
*U. S. Rubber Co., com.	56	57
*U. S. Rubber Co., pfd.	96	97
*White Motor Co.	38	39
*Willys-Overland Co., com.	17	17½
*Willys-Overland Co., pfd.	76	77

*At close, Jan. 26, 1918. Listed N. Y. Stock Exchange.

Wilmington Show Good Business Proposition

Dealers Report 25 Per Cent. Gain in Sales Over 1917—10,000 More Visitors This Year

WILMINGTON, DEL., Jan. 28—As a business proposition, the fourth annual Wilmington show, which ended on Saturday night, had all of its predecessors distanced. Some of the exhibitors say they did 50 per cent more real business than last year, which was the best up to that time, and 25 per cent increase all around would be a fair average.

The attendance, which was about 60,000, was 10,000 better than last year, and there was a much larger proportion of visitors actually interested in the motor car than ever before. Everybody agreed that it was a "business crowd."

Trucks are not permitted at these shows, because they are held in the lobby and main dining room of the Hotel Du Pont. Being public, no admission is charged. The net cost of this year's show to the retail trade was \$1,200. This represents the expense, about the same as last year, and it was borne by the 21 dealers and eight accessory men exhibiting.

Dealers are optimistic about the spring and summer business, with the belief that the chief demand will be for trucks and the fear that the demand cannot be supplied. Some now have unfilled orders for cars because they are unable to get them.

The war made no difference in the Wilmington show, because no admission was charged. No tractors or farm vehicles were shown, but tractor men were on the job and did lots of business. They believe Delaware will show great results in the farm trade this year.

The business outlook in Delaware is good this year. Wilmington, where most of the manufacturing industries of the state are located, has developed to such an extent that thousands of persons engaged in business here are unable to find homes, and the city and United States Government expect to spend \$3,000,000 supplying the deficiency in this behalf.

A great deal of war material is manufactured here, the chief industries being steel and wooden ships, steel cars, leather and kindred products, fiber, explosives and machinery. The rest of the state is devoted to agriculture, and, being near the city market, all available land will be used this year to supply the cities with produce. This is where the motor car and farm tractor will have an opportunity to shine.

The people will have plenty of money, with mechanics earning from \$5 to \$20 a day and other wages in proportion, lots of persons not used to cars heretofore are likely to have them this year. As a rule the cars bought will be those that can be used for both passengers and business.

The motor car is used here in connec-

tion with all kinds of business, chiefly for delivery purposes and in hauling around industrial yards and to and from transportation terminals, while some are used for regular freight traffic between Wilmington, Philadelphia and other points in Pennsylvania, Maryland and Delaware.

It is estimated that 2000 cars are used in Wilmington for business purposes.

The accessory people at the show—and there were eight of them—were quite as well pleased as the motor men. While there were no striking features that were not there last year, the public showed just as much interest as if there had been.

Canadian Dealers to Organize

MONTREAL, Jan. 26—Representative dealers from Quebec, Sherbrooke, Three Rivers, Huntingdon, Ste. Therese, and Kingston, Ontario, were present yesterday at the meeting held for the purpose of discussing the organization of local automobile trade associations along the lines so successfully followed by the Montreal Automobile Trade Association. Committees were appointed to carry out the preliminary organization work at each of the centers represented, and they will report back at a meeting to be called in Montreal shortly.

To Organize Canadian Manufacturers

MONTREAL, Jan. 26—A largely attended meeting of general managers, sales managers, branch managers and other officials of the various factories represented at the Montreal automobile show was held for the purpose of considering the general conditions of the trade in Canada. The discussion dealt largely with the desirability of a Dominion-wide organization of manufacturers and general agencies, but definite action was not decided upon. Sufficient progress was made to justify the expectation that the conferees will organize at a later meeting.

Kirby Will Remain

MONTREAL, Jan. 26—At a special meeting of the directors of the Montreal Trade Association, held yesterday afternoon, Mr. T. C. Kirby, manager of the association and the show for the past five years, was asked to reconsider his resignation, which he tendered this week. After the situation had been discussed and strong pressure brought to bear upon Mr. Kirby, he consented to withdraw his resignation and forego the plans which he had made for other and wider activities. He will, therefore, continue to discharge the duties which he has so capably filled under the direction of the board of the association. For the next month he will be kept busy closing up the affairs of the show and the association, in preparation for the end of the association's financial year on Feb. 28. The annual meeting will be held about the middle of March, when it is expected the present officers and directors will be re-elected without opposition.

Boston Decides Not To Postpone Its Show

Original Dates, starting March 2, Retained—Space Sold to 90 Dealers Already.

BOSTON, Jan. 26—Boston will hold its motor car show on March 2 and the following week, the regular dates decided upon each year. The matter was thoroughly considered and it was found by the board of directors that to make a change to a later date would involve a lot of cancelling of contracts and mixing up of matters that would be harmful. A number of the dealers want it held as originally planned to take advantage of the early spring, and also to get it started ahead of the next proposed Liberty Loan.

The only idea of changing the date was due to the Monday holiday and the thought that the fuel conservator would hamper the exhibition by closing it at night. That is not thought possible now. There are some 90 makers who have taken space and there will be about 500 cars and trucks in the show. This will be the only big show where trucks will have a good chance to exhibit as well as cars. A big list of accessory people are to show here also. There will be no trouble to heat the building, in fact it is always too hot during show week, and the steam has to be turned off.

Des Moines Dealer Holds Used Car Show

DES MOINES, Jan. 26—The Clemens Auto Co. made the first pretentious attempt at holding a used car show this week that has ever been tried in Des Moines. All the used cars in the show were previously put through the paint shop and all new cars were removed from the display room to make room for them. The display room was decorated for the occasion and the used cars presented such an appearance as to give the casual observer the idea that the room was filled with new cars. The show was advertised extensively and members of the company are more than pleased with the results. A week of mild weather after a period of six weeks of unusual cold tended to bring out a larger number of visitors and many sales were made.

Greer-Robbins Territory Extended

LOS ANGELES, Jan. 26—Greer-Robbins & Co., Hupmobile and Chalmers distributors for southern California, has been appointed distributor for the Hupmobile throughout California, Arizona and Nevada. The firm has been the second largest distributor of this car in the world, New York City alone leading them. P. H. Greer and A. C. Robbins, of the organization, will divide their time between Los Angeles and San Francisco. E. W. Milburn, former manager of the factory branch in San Francisco, will continue in charge there. The company is one of the oldest in the State in this business, having been established in 1903.

Garford Trucks Delivered Overland

LIMA, Jan. 26—What is perhaps the largest overland delivery of motor trucks ever attempted at one time is being made by the Garford Motor Truck Co. This fleet, comprising thirty-eight trucks of all the various models from 1½ to 7 tons capacity, left the plant at Lima last Wednesday in the face of the most severe weather conditions imaginable. Battling with snow drifts mountain high over roads that had become well nigh impassable these freight haulers are bucking their way over a long haul to New York City.

York Show Abandoned

YORK, PA., Jan. 26—Owing to the coal shortage in this city, the annual show which was to open this evening in the tabernacle, South Queen Street, was called off. The arrangements for the exhibition were progressing nicely and practically all of the available floor space had been sold when Robert E. Gephart, York county fuel administrator, informed the committee of the York Automobile Dealers' Association that the show must not take place at this time owing to the scarcity of coal.

Rhode Island Garage Fires Cause \$130,000 Loss

PROVIDENCE, R. I., Jan. 26—Two big garage fires in one day with a loss of nearly \$130,000 and about 50 motor vehicles was the New Year's gift to the motor colony of Rhode Island. The larger of the two fires was in the big Packard service station, and caused about \$120,000 loss. Charles Livingston was filling a tank with gasoline, and when he had finished he struck the funnel against the spout of the can, there was a flash and he was soon ablaze, as well as the car. The fire spread rapidly and burned 35 touring cars, seven trucks and \$30,000 worth of accessories, parts, etc. The motor vehicles were valued at \$70,000, and the loss to the building, which will have to be entirely rebuilt, was about \$20,000.

The second fire occurred in the garage of Price & Thornton. There were five cars in this building, which was a wooden structure.

Rock County Dealers Organize

JANESVILLE, WIS., Jan. 26—The Rock County Automobile Trade Association was organized at Janesville, Wis., at a meeting of more than 20 dealers and garagemen. The association will incorporate under the laws of Wisconsin, the articles being signed by C. W. Kemmerer, J. A. Drummond, H. C. Prielp, R. F. Buggs and J. C. Fredendall. The object of the association is to promote mutual welfare. A show will be conducted at Janesville in February or March.

WASHINGTON, D. C., Jan. 28—Lieut. Col. Thurman H. Bane, Signal Corps, is appointed a member of the Joint Army and Navy Technical Aircraft Board, vice Major Harold S. Martin, Signal Corps.

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. P.	Ignition	Carburetor	Starting	Clutch	Gearbox	Tires	3- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT 6-32	6-31x4 20.4 Remy		Remy	Stumg	Remy	DD	3 123 34x4 SS		1895		1895	2150	2150		
ALLEN Series 41	4-31x5 22.5 Conn		A-Lite	Stumg	A-Lite	D	3 112 32x3 SS		11095	1095			1385		
AMERICAN B	6-31x5 29.4 G & D		G & D	Zenith	G & D	D	3 122 32x4 SS			1375					
ANDERSON 20	6-31x4 25.3 Conn		Zenith	Zenith	Webb	DP	3 120 33x4 SS		**1465			2165			
DELUXE APERSON	6-31x5 29.4					D			**1925						
6-18	6-31x5 29.4 Remy		Remy	Radd	Bijur	DP	3 130 35x4 SS		12200						
6-18	6-31x5 33.8 Remy		Remy	Johnson	Bijur	DP	3 130 35x4 SS		12550						
AUBURN 6-30-B	6-31x4 25.3 Remy		Remy	Radd	Remy	DP	3 120 34x4 SS		1345	1345					1595
6-31x4	6-31x5 29.4 DeLo		DeLo	Radd	DeLo	DP	3 131 35x4 SS		1685	1685					1595
AUTIN Hy-King	12-21x5 39.6 DeLo		DeLo	Stumg	DeLo	D	6 142 34x4 QD		3750	3750	4000	4550	4050	5250	
BIDDLE H	4-31x4 22.5 E'mann		Zenith	Zenith	G & D	DP	4 121 32x4 QD		2600		12650		4100	4000	
BOUR-DAVIS 18B	6-31x4 29.4 West		West	Stumg	West	DP	3 118 32x4 QD								
4-31x4	6-31x5 22.5 West		West	Radd	West	DP	3 118 32x4		1680						
BREWSTER 4-4	4-4 26 25.6 Bosch		Zenith	Zenith	U.S.L.	C	3 125 34x4 SS		7200			8400	8500		
BRISCOE B4-24	4-31x5 16.3 Conn		Buick	Buick	A-Lite	C	3 104 30x3 C		725	725					850
BUICK E 4-34-35	4-31x4 18.2 DeLo		DeLo	Marvel	DeLo	C	3 106 31x4 C		795	795			1185	1845	
E 4-4-46	6-31x4 27.3 DeLo		DeLo	Marvel	DeLo	DP	3 118 34x4 SS		1265	1265			1165		1265
E-49	6-31x4 27.3 DeLo		DeLo	Marvel	DeLo	DP	3 124 34x4 SS			1495			2175		
CADILLAC 57	8-31x4 31.2 DeLo		DeLo	Own	DeLo	D	3 122 35x5 SS		2805		2805		3650	4145	
CASE U	6-31x4 29.4 Watts		Watts	Radd	Watts	D	3 125 34x4 SS		11875		1875		**2375		
CHALMERS 6-30	6-31x4 26.3 Remy		Remy	Stumg	Watts	DP	3 117 32x4 SS		1365	1365	1450		1850	2925	
CHANDLER 28	6-31x5 29.4 Bosch		Bosch	Radd	Watts	DP	3 123 34x4 SS		11595		1595	2195	2295	2895	
CHEVROLET 490	4-31x4 21.7 Remy		Remy	Zenith	A-Lite	C	3 102 30x3 C		660	665			1060		
FA-2	4-31x5 21.7 Remy		Remy	Zenith	A-Lite	C	3 108 32x4 SS		935	935			1475		
D	8-31x4 36.4 Remy		Remy	Zenith	A-Lite	C	3 120 34x4 SS		1365	1365					
COLE 870	8-31x4 39.2 DeLo		DeLo	Stumg	DeLo	C	3 127 35x4 SS		2285	1995	2195	2495	2595	2795	
COLUMBIA C&D	6-31x4 25.3 A.Kent		Stumg	Stumg	W Lord	DP	3 115 32x4		11495	1350			1995		
COMET C-50	6-31x5 29.4 DeLo		DeLo	Miller	Dyneto	DD	3 125 33x4			1285					
COMMONWEALTH 4-40	4-31x5 19.6 A.Kent		Stumg	Stumg	Dyneto	DD	3 112 32x3 SS		995	995					
CROW-ELKHART CE-36	4-31x5 19.6 Conn		Stumg	Zenith	Dyneto	D	3 114 32x3 SS			935		1295	1395		
CUNNINGHAM 8-31x5	45.0 DeLo		DeLo	Stumg	West	D	3 123 35x5								
DANIELS B	8-31x5 33.8 Watts		Watts	Zenith	Watts	D	3 127 34x4 QDR								
DAVIS H. I. K	6-31x4 25.3 DeLo		DeLo	Stumg	DeLo	C	3 119 24x4		1455	1455			1850		
J. I. K	6-31x5 29.4 DeLo		DeLo	Stumg	DeLo	C	3 125 34x4			1755					
DEPATCHE 4-31x5	22.5 Bosch		Bosch	Radd	U.S.L.	CU	4 120 36x3 QD		1150		1250	1400			
DIXIE FLYER 1295	4-31x5 16.9 Conn		Conn	Cartier	Dyneto	D	3 113 32x4 SS		995				1875		

[illegible]

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leeco-Neville, "Titan" Tillotson, "B & Ball" Ball & Ball, "Atr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spdlf" Splndrf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE— $37\frac{1}{2}\times 5\frac{1}{2}$ means that the rear tires are $37\frac{1}{2}$ in., and the front are smaller. Detachable top. 300x. means 3400 extra.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

York, Pa.....	York County Auto. Dealers' Assn., .....Jan. 26- Tabernacle. T. F. Pfeiffer, Sec. Feb. 3	Des Moines, Ia.....	Ninth Annual Passenger and Sec- ...Feb. 18-24 ond Annual Truck, Des Moines Automobile Dealers' Assn., Coli- seum. C. G. Van Vleet and Dean Schooler, Mgrs.
Bridgeton, N. J.....	Bridgeton Automobile Dealers' .....Jan. 26- Assn. Feb. 2	So. Bethlehem, Pa...	Fourth Annual (cars 18-23; ...Feb. 18-27 trucks 25-27), Coliseum. J. L. Elliot, Mgr.
Harrisburg, Pa.....	Harrisburg Motor Dealers' Assn., .....Jan. 26- Emerson-Brantingham Bldg. J. Feb. 2 Clyde Myton, Mgr.	Quincy, Ill.....	First Annual, Armory. L. B. ...Feb. 20-23 Bartlett, Mgr.
Chicago, Ill.....	Eighteenth Annual, Coliseum and .....Jan. 26- Armory, National Automobile Feb. 2 Chamber of Commerce.	Muskegon, Mich.....	Second Annual, Merrill Audito- .....Feb. 25- rium. John C. Fowler, Mgr. Mar. 2
Chicago	Salon, Elizabethan Room of Con-.....Jan. 26- gress Hotel. Feb. 2	Bridgeport, Conn....	Fourth Regiment Conn. Home .....Feb. 25- Guard, State Armory & Casino Mar. 2 B. B. Steiber, Mgr.
Manchester, N. H....	Academy. Couture Bros..... Jan. 28-Feb. 2	Columbus, O.....	Columbus Auto Show Co., W. W.....Feb. 27- Freeman, Mgr. Mar. 2
Greensburg, Pa.....	Westmoreland Automobile Deal- .....February ers' Association.	Burlington, Ia.....	Cars, trucks and accessories..... Feb. 27- Mar. 2
Peoria, Ill.....	Peoria Auto and Accessories .....February Dealers' Assn. W. O. Ireland, Mgr.	Boston, Mass.....	Salon, Boston Automobile Deal- .....Feb. 27- ers' Assn., Copley Plaza Hotel. Mar. 6 Chester I. Campbell, Mgr.
Indianapolis, Ind....	Indianapolis Automobile Trade.....Feb. 25- Assn., Diamond Chain Works Mar. 2 Bldg. John B. Orman, Mgr.	Omaha, Neb.....	Omaha Auto. Trade Assn., Audi- .....Feb. 23- torium. Clarke G. Powell, Mgr. Mar. 2
Minneapolis, Minn...	Twin Cities Automobile, Truck,.....Feb. 2-9 Tractor and Industrial Exposit- tion, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Lyons, France.....	Third Sample Fair.....Mar. 1-15
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars. Feb. 23-Mar. 2 Trucks .....Mar. 5-9	Pittsburgh, Pa.....	Automobile Dealers' Assn. of .....Mar. 2-9 Pittsburgh, Motor Square Garden. John J. Bell, Mgr.
Peoria, Ill.....	Peoria Auto Accessories Dealers' ..February Assn. W. O. Ireland, Mgr.	Boston	Boston Automobile Dealers' Asso- .....Mar. 2-9 ciation, Mechanics Building. Chester I. Campbell, Mgr.
Kalamazoo, Mich....	Kalamazoo Automobile Dealers' .....Feb. 5-9 Assn., Armory.	Utica, N. Y.....	Utica Motor Dealers' Assn., State ...Mar. 4-9 Armory. W. W. Garabant, Mgr.
Bronx, N. Y.....	Bronx Auto. Dealers' Assn., Sec- .....Feb. 9-16 ond Battery Armory. D. J. Bar- rett, Chairman Show Committee.	Clinton, Ia.....	Clinton Automobile Dealers' Ass'n, .....Mar. 6-9 Coliseum.
Binghamton, N. Y...	Binghamton Automobile Dealers' .....Feb. 5-9 Ass'n, Malurah Temple. William M. McNulty, Mgr.	St. Joseph	St. Joseph Automobile Dealers' .....Mar. 6-9 Assn., Auditorium. John Albus, Mgr.
Lancaster, Pa.....	Automobile Trade Assn., Fidelity .....Feb. 6-9 Bldg. R. W. Shreiner, Mgr.	Watertown, N. Y....	Automobile Dealers, Inc., State.....Mar. 6-9 Armory. Arthur E. Sherwood, Mgr.
Portland, Ore.....	Portland Automobile Trade Assn. ....Feb. 7-13 Auditorium. M. O. Wilkins, Mgr.	Green Bay, Wis....	Brown County Automobile Trade ....Mar. 8-11 Assn.
Kansas City, Mo....	Kansas City Motor Car Dealers' ...Feb. 11-16 Assn., Convention Hall. E. E. Peake, Mgr.	Cedar Rapids, Ia....	Cedar Rapids Auto. Trade Assn. ...Mar. 11-16 Auditorium.
Elmira, N. Y.....	Elmira Automobile Club. State ..Feb. 11-16 Armory.	Fargo, N. D.....	Gate City Auto. Show Co., Audi-...Mar. 12-16 torium. J. W. Murphy, Mgr.
Kansas City, Mo....	Third Annual Tractor, Kansas ...Feb. 11-16 City Tractor Club.	Great Falls, Mont...	Montana Automobile Distributors...Mar. 15-20 Assn., Lexington Garage. A. J. Breitenstein, Mgr.
St. Louis, Mo.....	St. Louis Auto Mfrs. & Dealers' ...Feb. 18-23 Assn. Robert E. Lee, Mgr.	San Francisco, Cal..	Motor Truck Dealers of San Fran-...Mar. 19-24 cisco, Auditorium. Ivan R. Gates.
Toledo, O.....	Toledo Auto Shows Co., Terminal ...Feb. 11-17 Bldg. H. V. Buelow, Mgr.	Houlton, Me.....	Second Annual, Houlton Motor ...Mar. 20-22 Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.
Ft. Wayne, Ind....	Automobile Trade Assn., Concor-...Feb. 13-16 dia Gymnasium.	Holdrege, Neb.....	Second Annual of Southwest...Mar. 20-23 Nebraska.
Hartford, Conn.....	Hartford Auto Dealers' Assn.....Feb. 16-23 State Armory. Benjamin F. Smith, Mgr.	Trenton, N. J.....	Trenton Auto Trade Assn., Sec-...Mar. 20-23 ond Regiment Armory. John L. Brock, Mgr.
Newark, N. J.....	N. J. Auto. Exhibition Co., First ...Feb. 16-23 Regiment Armory. Claude E. Hol- gate, Mgr.	Atlantic City, N. J.	Second Annual, Garden Pier.....Mar. 30- W. W. Garabant, Mgr. Apr. 6
Albany, N. Y.....	Albany Auto Dealers' Assn., ...Feb. 16-23 State Armory.	Hartford, Conn.....	Hartford Automobile Dealers' ...Mar. 30- Assn., State Armory. B. F. Apr. 6 Smith, Mgr.
San Francisco, Cal..	San Francisco Dealers' Assn., Ex-...Feb. 16-24 position Auditorium. G. A. Wahl- green, Mgr.	Red Bank, N. J....	Monmouth County Auto. Dealers'....Apr. 6-13 Assn., Armory. E. C. Von Kat- tengell, Mgr.
Waterbury, Conn....	United Shows Co. ....Feb. 18-23	Stockton, Cal.....	Third Annual San Joaquin Auto....Apr. 9-13 Trade Assn. Samuel S. Cohn, Mgr.
Syracuse, N. Y.....	Syracuse Automobile Dealers' ...Feb. 18-23 Assn., State Armory. Harry T. Gardner, Mgr.	Calumet, Mich.....	Upper Peninsular Show, Copper...Apr. 17-20 County Automobile Dealers' & Garage Owners' Assn., Coliseum.
Grand Rapids, Mich..	Automobile Business Assn., ...Feb. 18-23 Klingman Building. Ernest T. Conlon, Mgr.		
Duluth, Minn.....	Duluth Auto. Trade Assn., Ar-...Feb. 18-23 mory. John J. Lane, Mgr.		
Springfield, O.....	Springfield Auto Trades Assn., ...Feb. 18-23 Memorial Hall. C. S. Burke, Mgr.		
Pittsfield, Mass.....	State Guard, State Armory. ...Feb. 18-23 James J. Callagan, Mgr.		
Nashville, Tenn.....	Nashville Auto Trade Assn., Hip- ...Feb. 18-23 podrome. Henry B. Marks, Mgr.		

Conventions

Montreal, Can.....	Convention of all men interested ...Jan. 22-24 in the Automobile Industry in Eastern Canada.
Chicago, Ill.....	Annual Convention, Garage Own- ...Jan. 29-31 ers' Assn. of Ill., Green Room, Congress Hotel.
Richmond, Va.....	Richmond Automobile Dealers' ...Jan. 21-26 Association, First Regimental Ar- mory. Henry B. Marks, Mgr.
Hot Springs, Va....	Third Annual World's Salesman- ...June 5-12 ship Congress.

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 6

New York, February 6, 1918

Ten cents a copy
Two dollars a year

The Most Complete Survey of Tire Conditions Ever Made—Now Ready

The inside facts revealed by thousands of answers from dealers, distributors, motorists and others have been checked, compiled and charted in one big volume.

THIS tremendous tire investigation was conducted in practically every state in the Union with possibly four or five exceptions.

powerful merchandising selling ideas are shown and explained in this great book.

Miller Tires
UNIFORM MILEAGE
GEARED-TO-THE-ROAD

What Miller Tire 99 per cent uniformity is and how it is attained is all explained. Also what it means to you in satisfied customers, easy

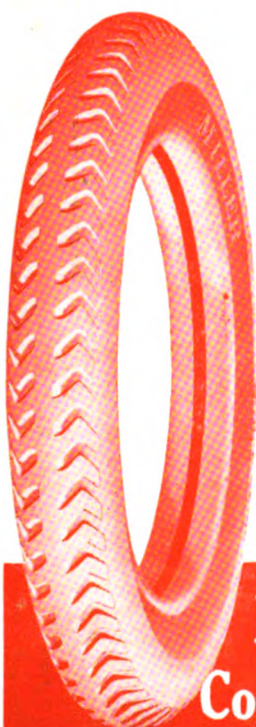
sales and permanent trade.

If you are contemplating a change in connections or are interested in so attractive a proposition as Miller has to offer, fill out the coupon today.

This wonderful book will be sent you free. But don't wait.

Our supply of these books is limited. The demand for them is sure to be great. So send in your name today.

The Miller Rubber Company
Dept. A-8 Akron, Ohio



It occupied about three months. And is undoubtedly one of the largest trade researches ever made by a private concern.

For purposes of comparison, the data secured were recapitulated and charted. These charts of vital importance to the trade as well as many

Dealers Who are Interested in Making a Miller Connection Should Send in Their Names Today Sure



Remember—

UTILITY *Protected Foot-Rail* HEATER

Is for Year 'Round Service With Big Overhauling Time-Demand

The brunt of the winter season and overhauling time are ripe for UTILITY Protected Heater installations. March, with its winds, is one of the coldest driving months—and UTILITY Protected Heater services are essential for night driving well into June, and again early in September.

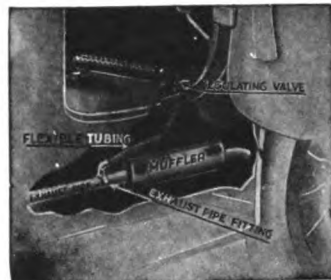


In the meantime, consider that the UTILITY is a comfortable and ornamental substitute for the foot-rail, and that it serves in this capacity without heat during the short period of warm weather.

Last year, dealers made installation records in February and March. This year—with its abnormal cold—these records can be smashed to atoms.

Write for unusually attractive literature and details.

Dealers—Order from your jobber. He has UTILITY Protected Heaters.



How UTILITY PROTECTED HEATER
Is Attached to the Exhaust

Price \$15

UTILITY Jr. Protected Heater for
Fords\$7.50
UTILITY Front Seat Heater, for
Maxwells, Chevrolets, Fords and
Front Seat Installations in all other
cars\$10
Prices west of Rockies:
UTILITY Protected Heater..\$16.00
UTILITY Front Seat Heater. 10.75
UTILITY Jr. Heater..... 8.00

Keep the Driver Warm

THE HILL PUMP VALVE CO., Archer Ave. & Canal Street, **CHICAGO**

Eastern Sales Office: 149 Church St., New York

[Manufacturers of Famous UTILITY Auto Specialties]

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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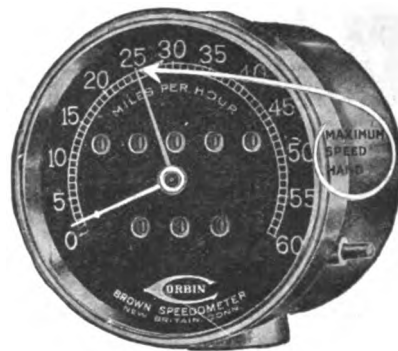
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*Read the Record Right
 For 1918 Equip with the*

CORBIN-BROWN SPEEDOMETER

It starts in telling the truth and keeps on telling it as long as the life of the motorcycle.

Apart from its undeviating accuracy one of the most valuable features of this universally used instrument is its great durability. This is due to the nature of its mechanical construction, which is simplicity in itself. Its parts are few, large and strong. They decrease the chance of breakage and reduce friction to a minimum. Thus at all times the Corbin-Brown operates smoothly and dependably. Furthermore, no matter what may be the condition of the weather, either extremely hot or cold, the accuracy of the Corbin-Brown record remains totally unaffected.

For absolutely satisfactory speedometer service start the 1918 season with a Corbin-Brown Speedometer. At motor and accessory stores everywhere.

Write for catalog.

The Corbin Screw Corporation

The American Hardware Corporation, Successor

NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
Makers of Corbin Duplex Coaster Brakes for Bicycles



The Genemotor as an Investment

THE GENEMOTOR IS AN INVESTMENT, as much as the Ford itself. It furnishes you with un-failing power for starting and lighting regardless of weather conditions. It provides you with electric light at all times, protecting you against accidents in night driving or while your Ford stands idle at the curb.

The GENEMOTOR costs more than most Ford starting systems because there is more value **built into it**. We felt the **first** duty was to build the **best** regardless of price rather than to **set a price** and **cheapen** the product by **skimping** on materials.

Genemotor

Trade Mark

"It starts your Ford and Lights it too"

GENEMOTOR is a "single unit" system requiring less space, weighing less and requiring less time to install than any other Ford Starting System.

A novel system of winding (Patented) eliminates switches, cut-outs, extra brushes and other mechanical devices for changing from a generator to a motor and vice versa. It is simplicity itself.

Prompt delivery of all orders guaranteed.

Ⓜ Built by the General Electric Company Ⓜ

Price \$90, f. o. b. Lynn, Mass.

Sold everywhere.

Prest-o-Lite Batteries Standard Equipment

Send for 1918 GENEMOTOR catalogue

A. J. Picard & Company, Inc., New York
General Distributor 61st Street at Broadway, N. Y.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, February 6, 1918

No. 6

Backbone Will Save the Industry

If All the Dealers in the United States Buck Up and Go Into 1918
in a Patriotic, Fighting Business Spirit They Can All
Keep Their Organizations Intact, Make Money
and Help Win the War

By Ray W. Sherman

CHICAGO, Feb. 2.—The Chicago show, which ended to-night, has developed one big fact. It is this: Backbone can save the motor-car industry.

The absence of backbone will work great harm during 1918.

And what is this backbone? It is nothing but a fighting spirit in business on the part of America's 30,000 dealers. It is their determination to cut out all this blue-funk stuff and wipe away the clouds of gloom that have so enveloped some of them that they could start now and count up the profits they won't get this year.

Before the New York show everybody wondered in what condition the industry was. The New York show demonstrated that the old industry is still here.

The Chicago show added to the demonstration, and thousands of dealers who came from the great West to this show have gone home with new hearts and new hopes—and they're going to go after business in 1918.

Out here in the West there is more optimism than in the East. Folks out here are closer to the food-producing

soil that is working overtime to help win the war. The western dealer is not easily discouraged—but he did and does need a stiffening of backbone to bring him back.

Furthermore, this backbone matter has been put on an organized basis, and confidence is to be restored all along the line in the shows that are scheduled to follow Chicago.

The National Association of Automobile Show Managers—made up of the men who run the country's big dealer shows, some of which are bigger than the national shows—held a wonderful meeting here this week and took steps to bring the dealer army into full fighting trim.

Cleveland Started the Ball

The idea had its first big try-out at the Cleveland show, where the Cleveland association staged a big luncheon during the show and had Hugh Chalmers there to drive home the message of we-must-do-business.

The message was so big and the meeting so successful that there was no doubt of the plan's desirability.

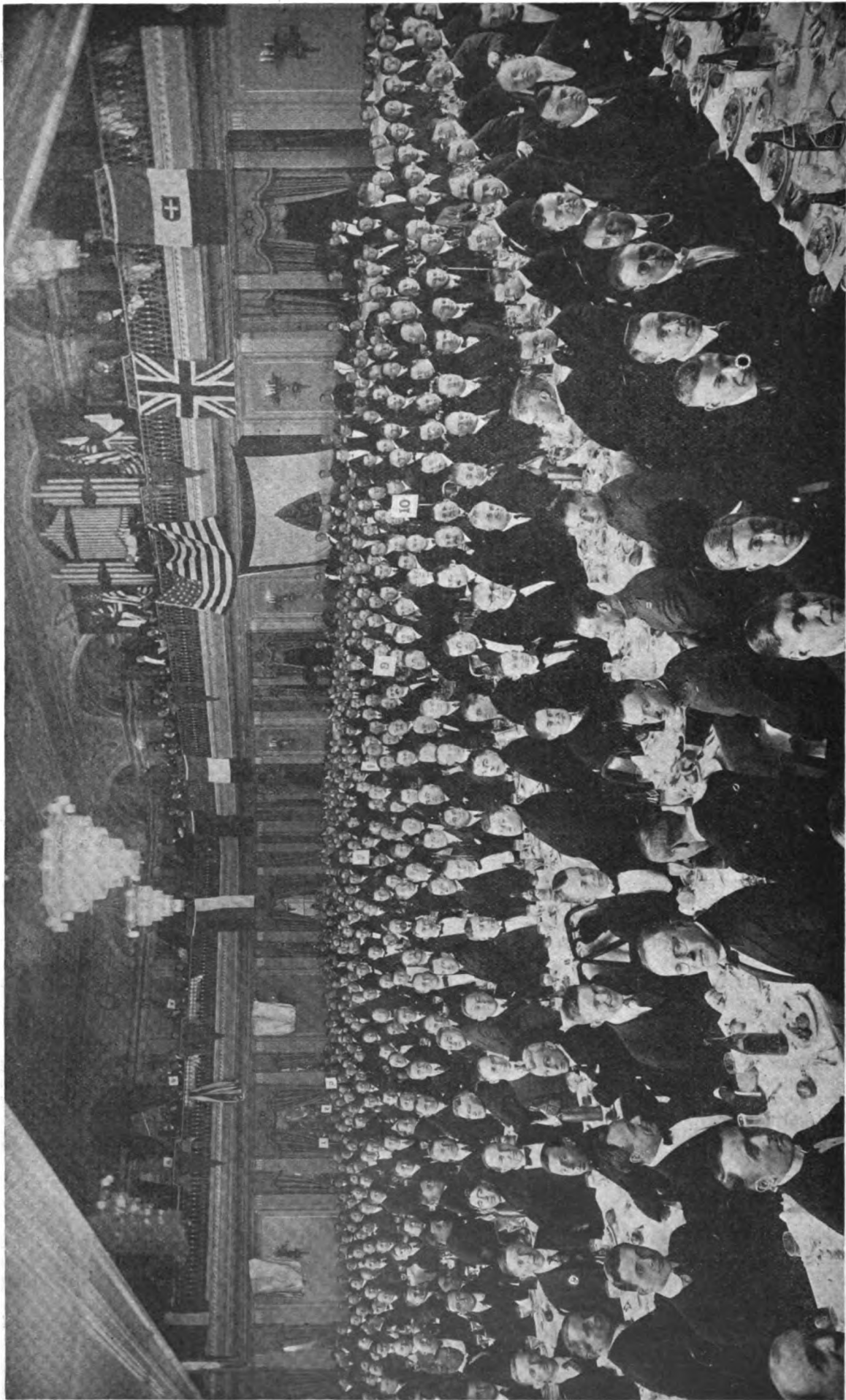
So, when the show managers met they outlined other meetings to be held all around the circuit.

Next week there is to be a big meeting in Minneapolis. Speakers who know the national situation, who know the industry and who know the dealer trade will tell the dealers of the Great Northwest why they must get up on their toes and fight harder for business during 1918 if they are to do their bit toward winning the war.

The week after Minneapolis comes Kansas City. And there is to be one—and possibly more—at which the message of we-must-do-business will be carried to the dealers of the Great Southwest.

After Kansas City come St. Louis and Des Moines, both the same week. Each of these towns has scheduled territorial dealer meetings, with speakers to carry to the dealers the story of why and how they must do business in 1918.

The end of the big show circuit is Boston, and this city is planning a great New England rally, attended by hundreds of dealers, with possibly Hugh Chalmers to carry to the great New



MORE than 1200 persons attended the first war dinner of the Society of Automotive Engineers, which was one of the most important functions during the Chicago Show. The dinner was patriotic from start to finish, what with its Hooverized menu and the presence of a number of persons who are high up in national affairs.

Where Elgin Dealers Broke Bread Together

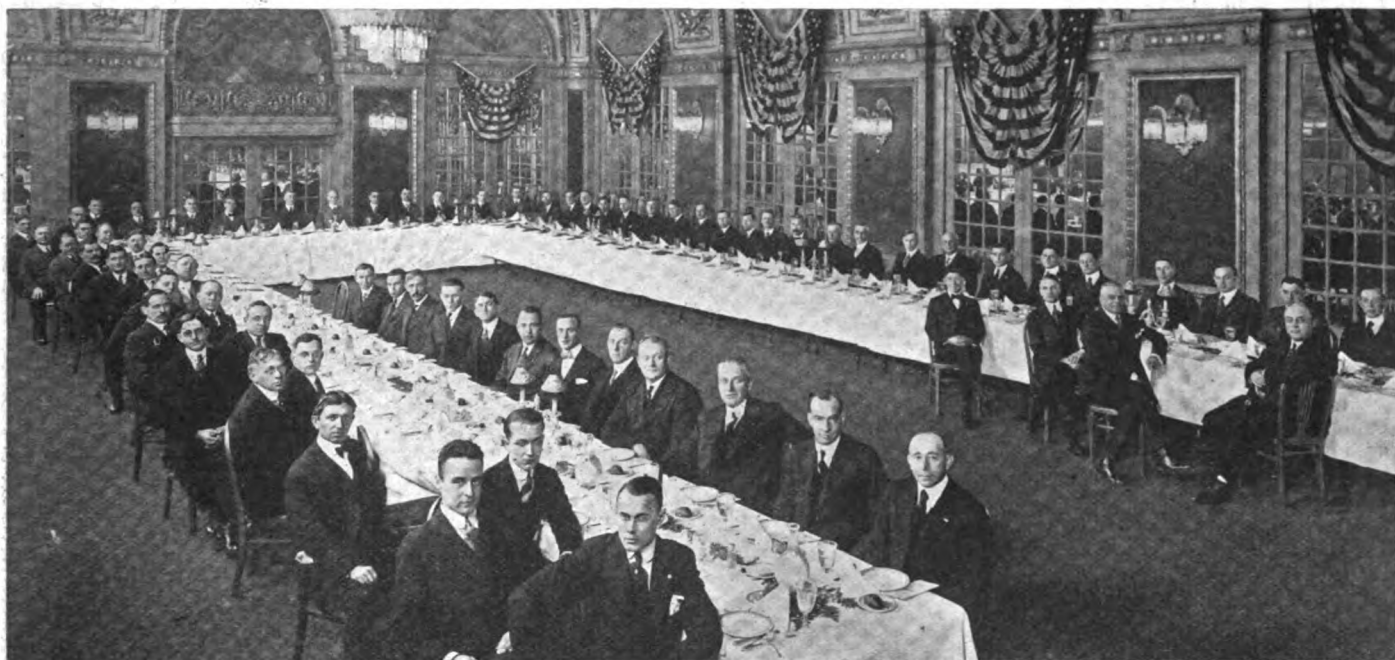


Photo by Kaufmann & Fabry Co.

England army his thrilling story of how pessimism and blue funk won't win the war.

And the idea isn't done with even after the shows are over. Cleveland is planning more of these meetings, one about the first of March. Other cities are considering extending the idea throughout the coming months.

Alfred Reeves, general manager of the National Automobile Chamber of Commerce, has enlisted himself in the cause. He visited the meeting of show managers and volunteered to speak at as many meetings as he could make. He is going to Minneapolis, Des Moines, Omaha, Kansas City and other towns.

All of these meetings are for the purposes: 1—To show the dealers the real situation, and 2—To show them why they MUST do business in 1918.

The dealers who go after business in 1918 will get it. Those who don't go after it stand a fine chance of being wiped out, and any dealer who can't stand up and fight for business when his country needs business might just as well be wiped out this year as any other time—and the sooner the better.

Making Dealers Better Fighters

All of this is to make the dealer a better fighter, and to supplement his fighting the show managers' association has launched a big advertising campaign that will help make the prospect see that hiding money in an old sock is the rank-est of unpatriotism.

The association is to prepare a series of business advertisements of page size for use in the daily newspapers. The copy for these ads is to be furnished without charge to more than 100 cities. With the copy will be the suggestion that the ads be run in the papers of these 100 cities and the expense pro-rated among

HAVE YOU SEEN——?

In This Issue

1—SPECIFICATIONS

THIS is the first issue in the month; and so you will find on pages 16 to 34, inclusive, complete specifications of passenger cars, trucks and prices of tires and tubes. These tables are invaluable for reference.

2—UNTANGLING THE INCOME TAX

IT would almost take a Philadelphia lawyer to fill out an income tax blank properly—that is, without the help of this splendid article by George F. Kaiser. The table will tell you exactly the amount of *your* tax.

3—HOW MUCH DOES IT COST TO DRIVE-AWAY?

EVERY dealer will have to drive his cars and trucks from the factory soon. This article tells how much it is costing several dealers in different cities; and it gives a number of good routes. Read it!

And Now For NEXT WEEK

How the Herring Motor Co. Runs Its Business

IN LAST WEEK'S ISSUE

BOYS, it's just a case of hard work from this time on. What you *will*, you will get. That was the great message that came out of the Chicago show. It's a business crowd at the shows this year, and this means there must be a business organization to meet the crowd.

CLEVELAND had a wonderful show. It was well planned.

The dealers went at it (1) to get the crowds; (2) to sell more cars, and (3) to study the drive-away problem. And they're succeeding better than they hoped.

DID you read that story about Lee Cuson and what he is doing to find out about his advertising appropriations? You ought to because it is all meat.

the dealers. This will provide a maximum display at a minimum of expense.

The copy is to be prepared by Herbert Buckman, assistant to Manager Fred H. Caley of the Cleveland show and publicity manager for that exhibition. The first ads are already in the mails. If you don't get yours write to Buckman.

These ads will not advertise shows or cars, although mention of the show may be worked in if the ads are used in connection with any of the shows in these 100 cities. The ads will simply tell the story of why America must have business and why the "ragged coat badge of honor" philosophy is the worst sort of thing at this time.

Where the Money Goes

There are thousands of people in the United States who believe they should not spend money. They do not know that the money that goes for a fancy necktie helps the storekeeper pay his rent, helps pay the clerks, helps buy food and clothes for the clerk's family, helps run the factory where the tie is made, helps pay the wages of the tie makers, helps buy food and clothes for their families, helps keep industry spinning, helps keep the holy dollars in circulation in war work, and provides livelihood for thousands who would suffer if the necktie business were abruptly suspended. The ads will show how the man who spends money does so for those who must spend to live.

The idea has been tried out in several places. Newark, N. J., has tried it. Milwaukee ran a series of ten ads by E. Le Roy Pelletier; Kansas City is spending \$10,000 on this work and Boston will do the same. The show managers, most of whom are association secretaries and officers and leaders in their sections, are back of the work unanimously and determined to overlook no step that will keep business on an even keel.

Sane Patriotism Takes Form

Never until the Chicago show did the idea of sane patriotism in business assume such concrete form. The leaders now seem to be lined up solidly on the right track. All that remains is co-operation from those who have not been co-operating.

The dinners given by manufacturers to their dealers at the Chicago show have been a big help. Invariably they have hammered home the thought that restriction in business can't win a war. Some of the manufacturers pursued the questionable plan of not having pictures taken of their dinners. It is said that some of them regarded this as unpatriotic. All of which leads one to wonder if there are some manufacturers who need to get out into some of these dealer mass meetings and let their own dealers sell them on the big thought of business activity instead of restriction and inaction. How can a dealer be expected to have backbone when the manufacturer assumes an attitude like this?

The dealers of wide vision are starting now for the big spring push. They are going after business. One Chicago dealer with twenty salesmen is going to

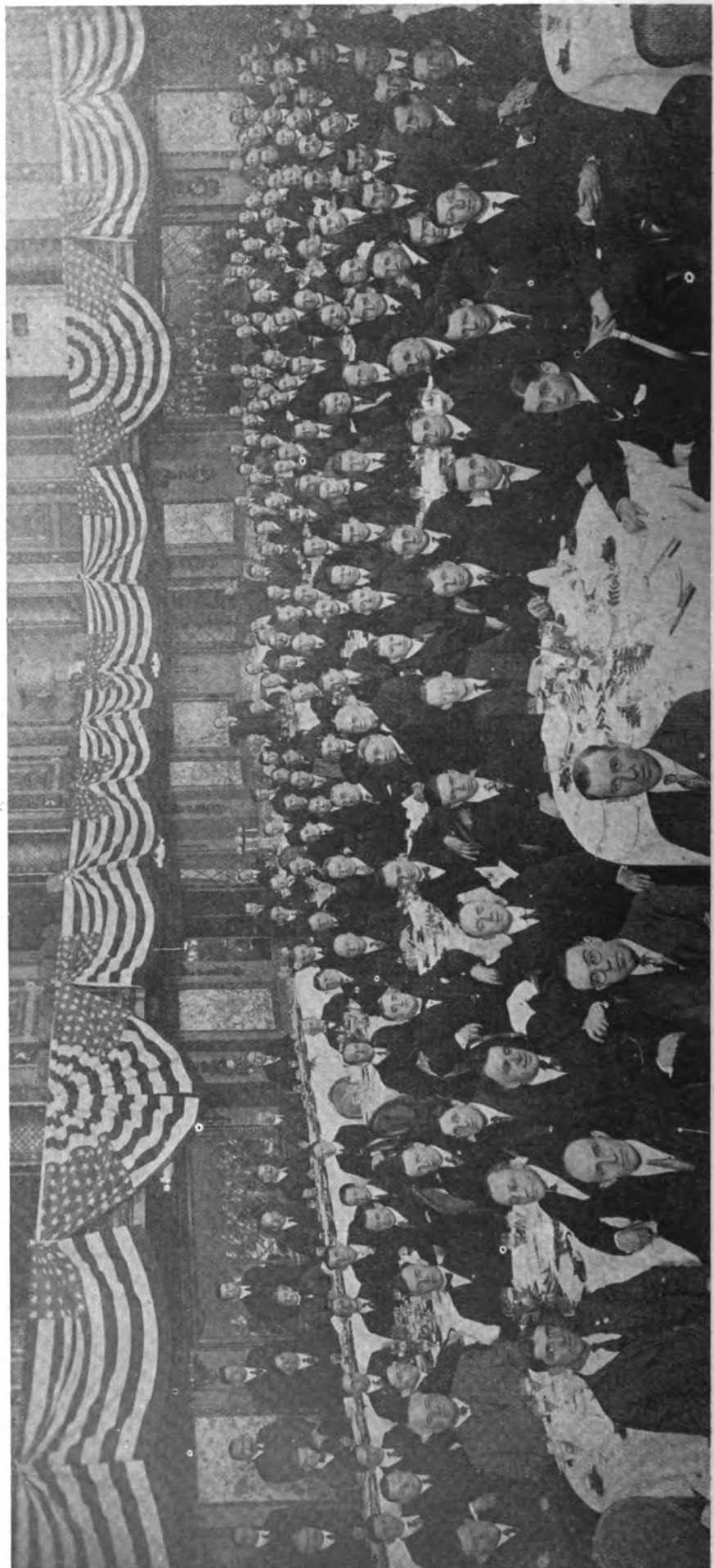


Photo by Kaufmann & Fabry Co.
Annual Dealers' Dinner-meeting of the Reo Motor Car Co. During the Chicago Show

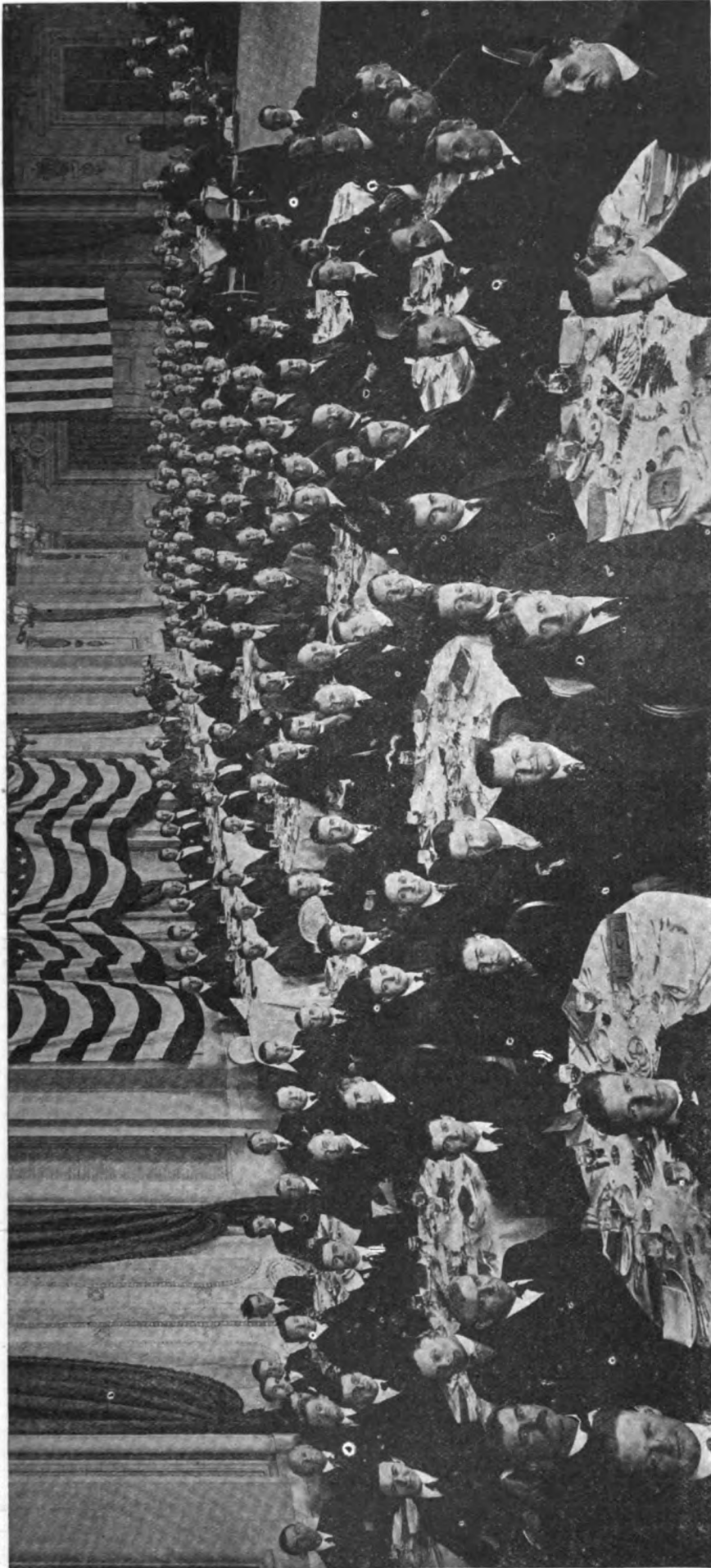


Photo by Kaufmann & Fabry Co.

Where Paige Dealers and Distributors Gathered During the Chicago Show

put on twenty more. He is going to sell cars.

Down in Kansas City Show Manager E. E. Peake, who is also president of the show managers' association, has sent to each dealer a letter stating that any salesman who stands around an exhibit and looks like a funeral guest will be asked to go home. They have already tied the can on Old Man Gloom in that part of the world.

At the Maxwell-Chalmers dinners here Thursday night Sales Manager Thomas J. Toner told the dealers that any man who lies down on the business he is in is a slacker. Movies showed salesrooms in Harry Newman's territory about Chicago, and from the way the front doors were shoved out it looks as though the big idea had taken hold in this part of the country.

Some big distributors who are here laugh when asked about spring business. They just haw-haw and tell of the 700 or 800 cars they have in storage waiting for the opening of the season. Some are pushing them out now and getting them into the hands of retail buyers.

One big distributor, who hopes for 8700 Buicks this year, said there was no question about business if the dealers waked up to the opportunity.

In all the hotel lobbies people are talking of the coming year. There is an air of hustle and push. Thousands are planning on how they may make greater efforts in 1918—and thousands more are listening to the conversation of the thousands of hustlers.

The propaganda of backbone has begun. It is the greatest anti-German movement ever undertaken by a trade. It is another blow at the Kaiser. It is cutting hours off the length of the war.

It is the automobile man's American answer to the challenge of the tyrant who shackled God to his standard and said he would crush the world.

Our trade has begun to do its bit.

Vesper President of Dealers' Association

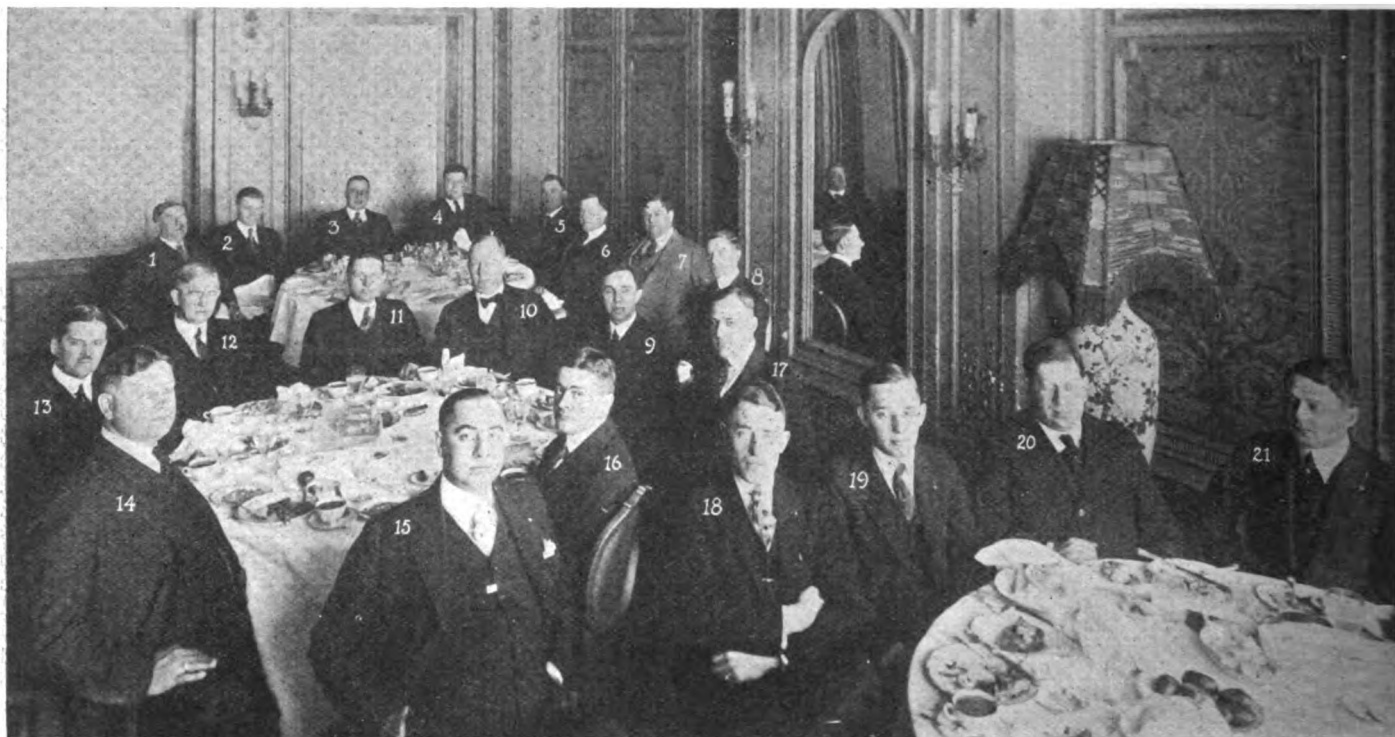
National Organization Selects St. Louis Man and Begins New Year with Membership Campaign

CHICAGO, Feb. 1—The National Automobile Dealers' Association, which was formed last summer in this city, has chosen a new slate of officers and hopes to attain a large membership this year through plans that are now being considered by the board of directors.

The new president is Fred W. A. Vesper, of the Vesper-Buick Co., St. Louis, who previously was second vice-president. The by-laws have been amended to admit dealers who are not members of city associations, thus providing for the membership of dealers in unorganized cities and small towns.

The new plan does not change the voting power of delegates, for each association that is affiliated sends to con-

National Association of Automobile Show Managers in Annual Meeting



1—Vice-President Bart J. Ruddle, secretary, Milwaukee Automobile Dealers, Inc. 2—T. D. Beard, assistant secretary, Chicago Automobile Trade Association. 3—Dean Schooler, president, Des Moines Automobile Dealers Association. 4—John Eustis, manager, Automobile Salon, New York and Chicago. 5—A. C. Heath, president, Fort Dodge (Iowa) Automobile Dealers Association. 6—Joseph T. Peacha, Duluth Automobile Dealers Association. 7—President E. E. Peake, secretary, Kansas City Motor Car Dealers Association. 8—Secretary-Treasurer Ray W. Sherman, Motor World, New York. 9—Joseph M. Grasser, president, Toledo Automobile Show

Co. 10—H. V. Buelow, manager, Toledo Automobile Show Co. 11—Warren E. Griffith, president, Toledo Automobile Show Co. 12—Prince Wells, president, Louisville Automobile Dealers Association, and show manager. 13—Chester I. Campbell, secretary, Boston Automobile Dealers Association. 14—C. G. Van Vleet, secretary, Des Moines Automobile Dealers Association. 15—George W. Franklin, vice-president, Detroit Automobile Dealers Association. 16—M. V. Duggan, secretary, Sioux City (Iowa) Automobile Dealers Association. 17—G. M. Seeman, Sioux City Automobile Dealers Association. 18—H. M. Files, Cedar Rapids (Iowa) Automobile

Dealers Association. 19—H. G. Lyman, secretary, Cedar Rapids Automobile Dealers Association. 20—Herbert Buckman, assistant secretary, Cleveland Automobile Show Co. 21—George E. Twitmyer, Cleveland Automobile Show Co.

Arriving after the picture was taken were: W. E. Mallory, director, Kansas City Motor Car Dealers Association; Joseph A. Schlecht, president, St. Louis Automobile Dealers and Manufacturers Association; Alfred Reeves, general manager, National Automobile Chamber of Commerce; David Beecroft, directing editor, Motor World, New York.

ventions one delegate for each twenty members and that delegate has twenty votes. Each member is represented by one vote.

Since the date of organization the association has received in dues \$5,940 and has left in the treasury \$2,642.02. There are 594 members, made up of individuals in several sections and the total dealer membership of city organizations as follows:

Worcester, Mass., 18; Louisville, Ky., 15; Minneapolis, 33; Des Moines, 30; Atlanta, 13; Brown County, Iowa, centering in Davenport, 12; Albany, 17; Los Angeles, 58; Chicago, 76; Oklahoma City, 20; Boston, 44; St. Louis, 43; Rocky Mountain Automobile Trade Association, centering in Denver, 31; Cleveland, 34; Kansas City, 64; Dallas, 25; Milwaukee, 42. Quite a number are listed from Philadelphia as individuals and not through the association. The membership fee is \$10. Fifteen states are represented.

The new officers are: President, Fred

W. A. Vesper, St. Louis; first vice-president, John A. McAlman, Boston; second vice-president, Prince Wells, Louisville; treasurer, Thomas J. Hay, Chicago; directors: George W. Browne, Milwaukee; John H. Johnson, Boston; George D. McCutcheon, Atlanta; P. E. Chamberlain, Denver; P. H. Greer, Los Angeles; A. E. Maltby, Philadelphia; J. A. Graham, Minneapolis; C. A. Forester, Cleveland; Dean Schooler, Des Moines.

What Washington Has Done

The meeting was addressed by Alfred Reeves, general manager of the National Automobile Chamber of Commerce, who told of the work that has been done at Washington since the war started and who urged the dealers to become more strongly organized and to take an active part in national affairs.

The lack of effective organization at the time the present tax on cars came up was pointed out as a sample of occasions that are likely to arise at any time.

The association is also endeavoring to

co-operate with the Commercial Economy Board of the Council of National Defense through a War Service Committee.

The delegates voted in favor of a strong membership campaign and a campaign of education throughout the trade. Great attention is to be paid to good roads. It was suggested that an electrotape with the name and emblem of the association be furnished members for use on their letterheads.

The selecting of a field secretary is to be left to the board of directors.

Show Managers' Meeting

CHICAGO, Jan. 31—A national advertising campaign to boost business was planned yesterday at the annual meeting of the National Association of Automobile Show Managers, together with dealer mass meetings at all the shows where it is possible to make arrangements. Hot-shot speakers are to be secured to convey to the dealers the need for backbone in business. The details

Annual Dinner of Velie Dealers and Distributers

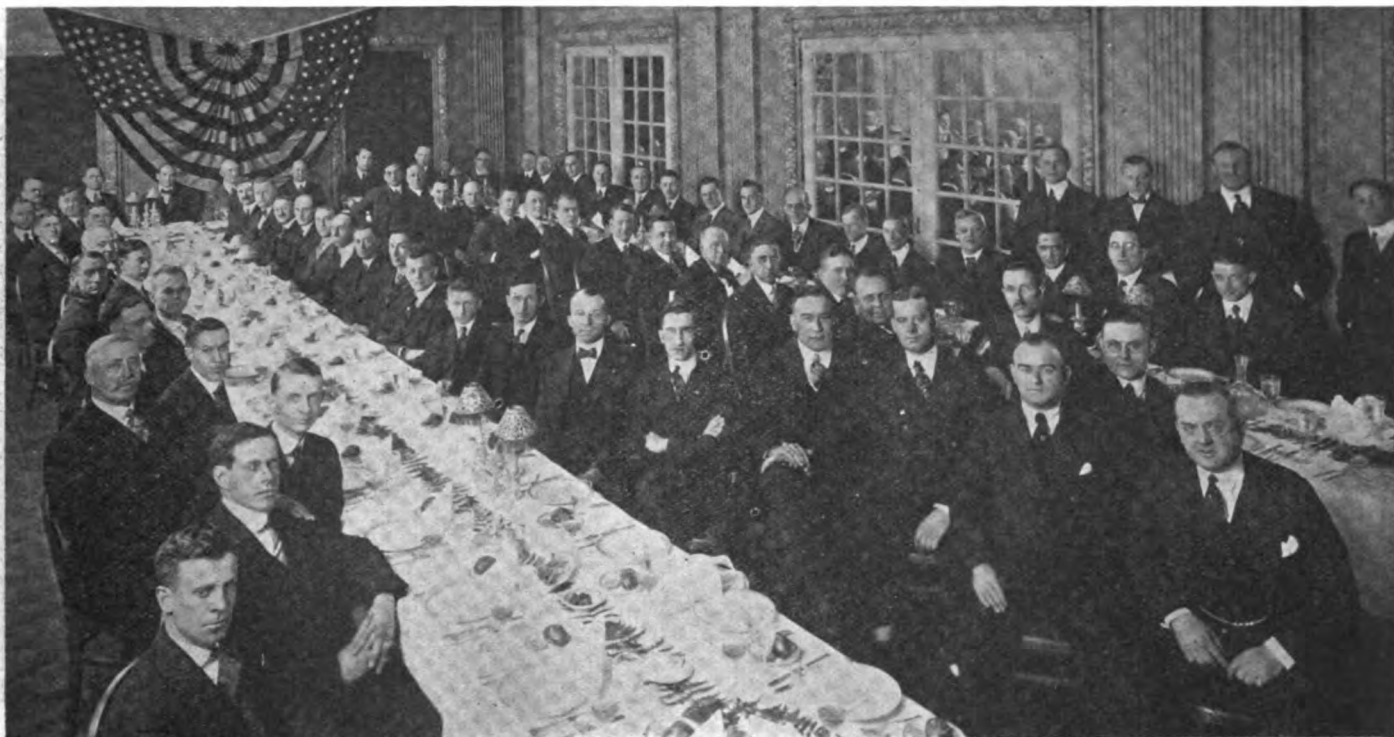


Photo by Kaufmann & Fabry Co.

of the story are told on page 5.

It was reported that with Cleveland, Minneapolis and Kansas City employing one decorator, E. W. Campbell, of Boston, the three shows are saving about \$15,000. This work is to be extended next year and other co-operative plans are to be worked out.

The officers were re-elected as follows: President, E. E. Peake, Kansas City; vice-president, Bart J. Ruddle, Milwau-

kee; secretary-treasurer, Ray W. Sherman, Motor World, New York.

Harry Newman Stages a Play

CHICAGO, Feb. 1—The old-style and the modern successful dealer were shown dramatically last evening at the dinner of the Maxwell-Chalmers organization at the Congress Hotel.

The portrayal was by means of a playlet called "Speed," written and played by members of the Harry Newman-Stratton organization, which handles the Maxwell and Chalmers in this section.

N. O. Pep was the old-time dealer, a blacksmith, and Physical Salesman was the factory man who sold agencies by bunk and force. Full O' Pep, the son, finally revised the business, took on two good agencies—guess which ones—set up

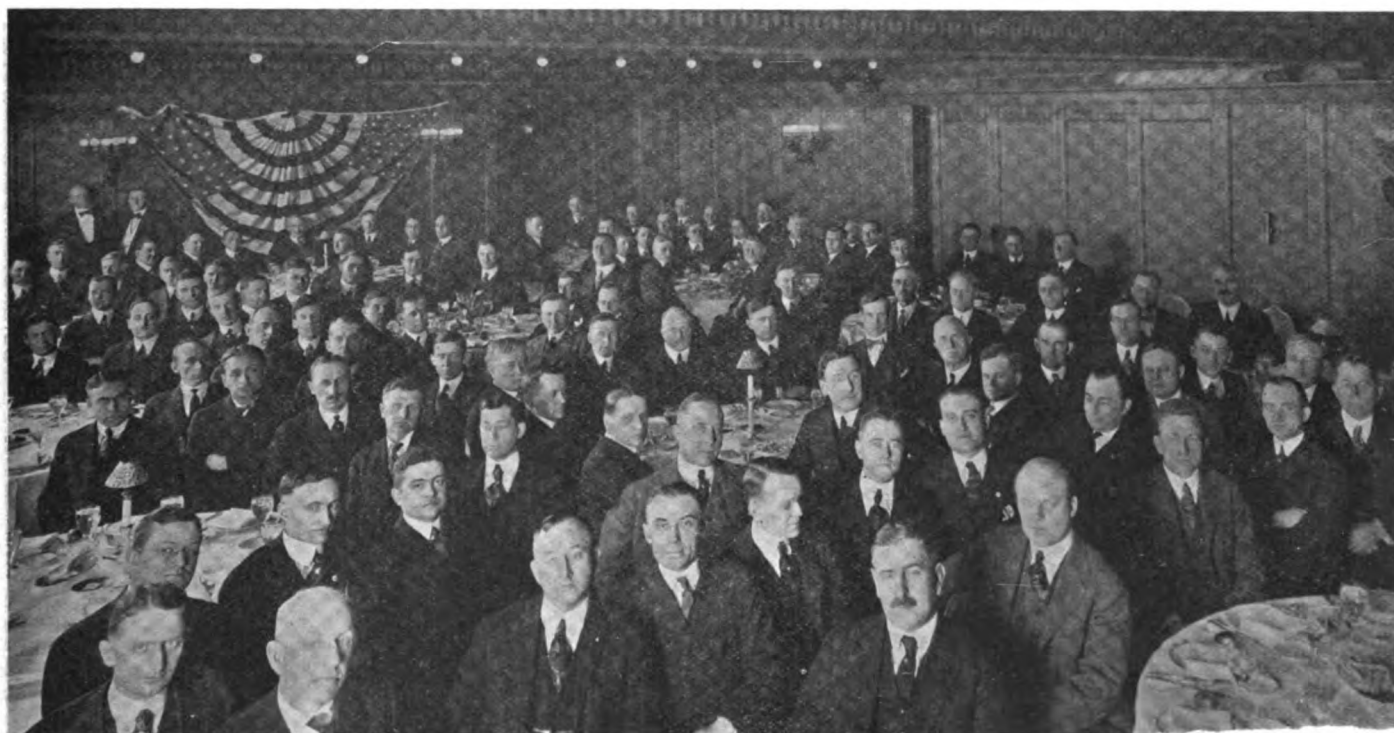


Photo by Kaufmann & Fabry Co.

A bunch of Franklin representatives who came together to swap experiences and spread optimism

Oldsmobile Dealers Who Gathered During the Show

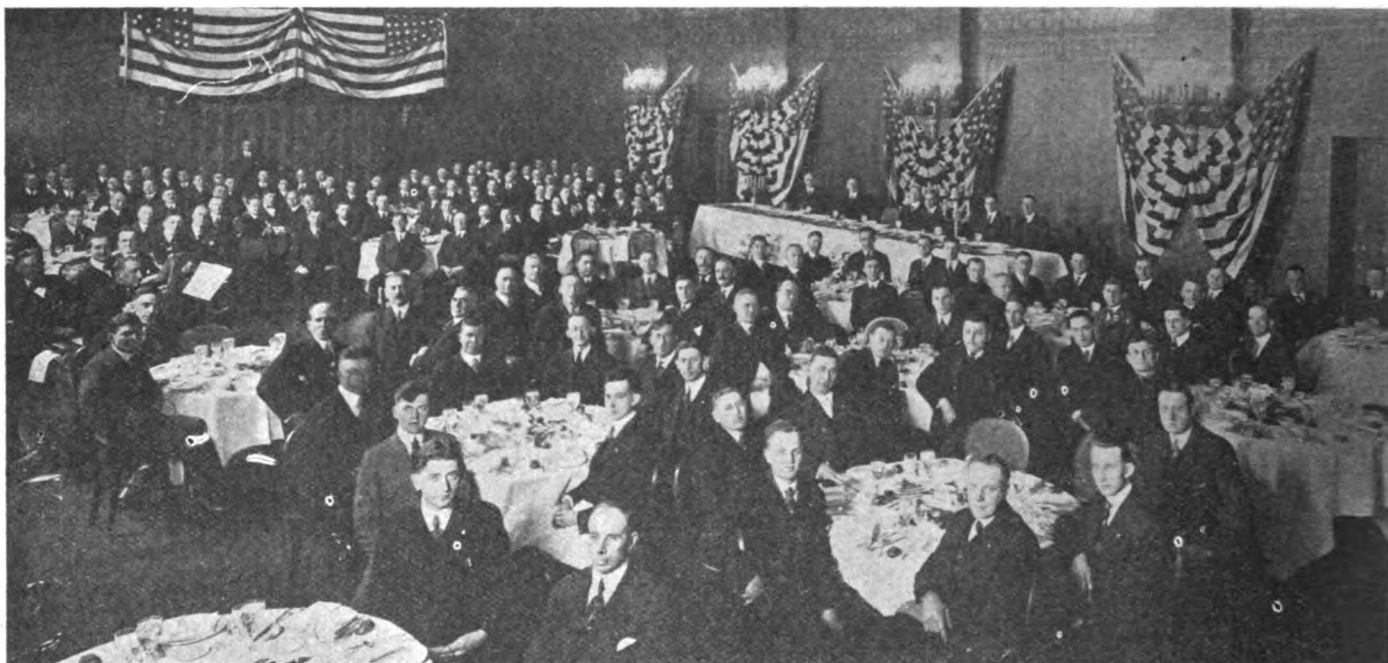


Photo by Kaufmann & Fabry Co.

a real salesroom, engaged Energy, Harmony, Truth and Loyalty, who threw out Laziness, Jealousy, Promises and Disloyalty, and married dad to Miss Efficiency, while the boy hooked up with Miss Intelligent Speed.

Ignorance and Failure were banished early in the play. Nut, Bolt, Wrench and Gear looked their parts. They did not appear in the finale. It was funny and got the idea across.

Fuel Greatest Problem, Says Kettering

CHICAGO, Feb. 2—The war dinner of the Society of Automotive Engineers held last night in connection with the tractor session takes first rank as one of the most notable ever held by the organization. The attendance exceeded 1200. President Kettering said, in part:

"Of all the problems we have to contend with to-day, the fuel problem is the biggest. There is nothing moved on this earth to-day except what is done with the sun's energy. This has been stored up in all forms in the earth and we have used it lavishly. Have we overdrawn our account? To-day there is arising a question. Can we go ahead? Must we curtail? It is the greatest question

(Continued on page 14)

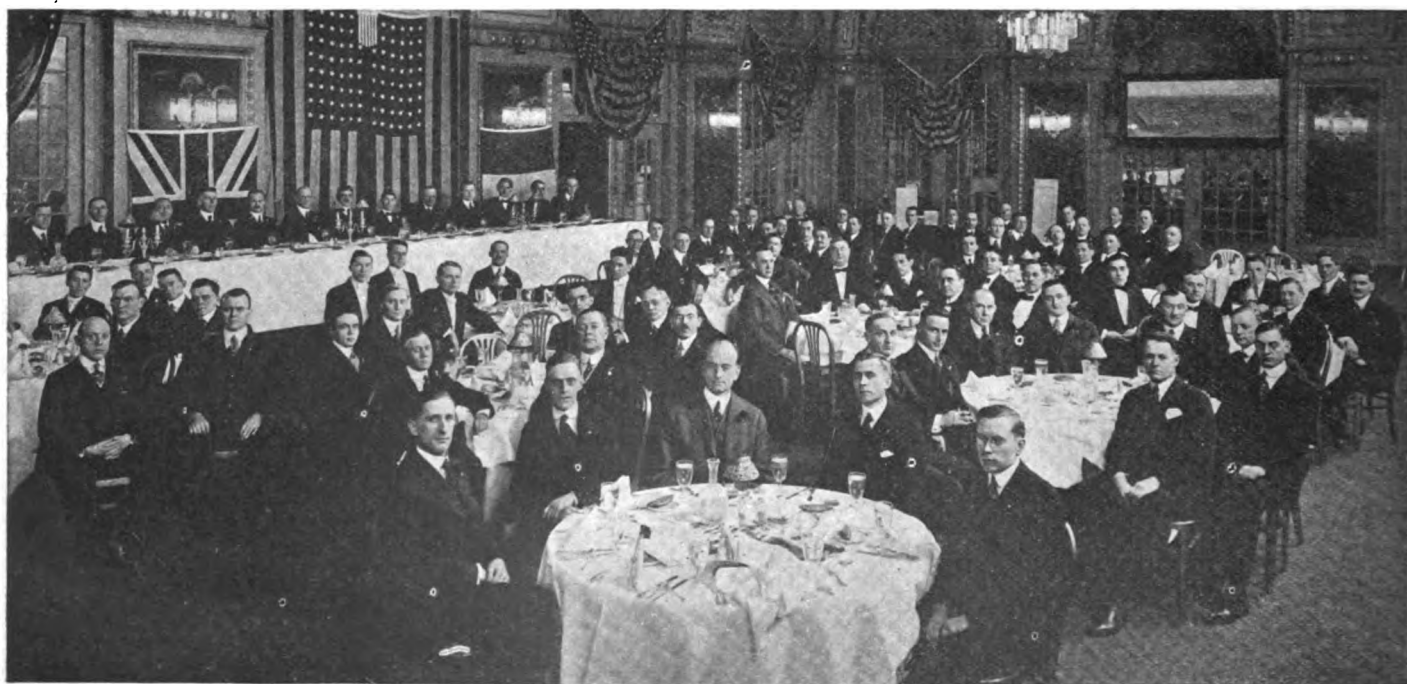


Photo by Kaufmann & Fabry Co.

Second annual banquet given to parts makers by the Elgin Motor Car Corp.

Your Sales Arguments

1918

- 1—Efficiency
- 2—Spend, not hoard
- 3—Buy wisely
 - a—Appearance
 - b—Comfort
 - c—Performance
 - d—Price
 - e—Service

1917

- 1—Appearance
- 2—Comfort
- 3—Performance
- 4—Price
- 5—Service

By Ray W. Sherman

"GEE, but these prospects are getting to be tough nuts!" exclaimed George Baxter, one of the younger salesmen for Cornelius J. Reilly, Inc., as he threw his hat down on his desk, and flopped into a chair.

"Yes?" said Reilly, who had gone through 1917 with a successful Sennett year and who hoped to put a lot more of them into Callawassa in 1918.

"Y-a-a-s," drawled George, "they have more reasons why they should not buy a car than I can think of to the contrary. And when they get to going on this patriotic save-money stuff they sort of get me floored. I begin to lose the minute they start it."

"Guess we'll have to revise our sales story," suggested Tommy Trumbull, sales manager for Reilly.

"Mighty good idea," exclaimed Reilly. "We should have gone at it systematically long ago. Things have sort of revised themselves so far as selling is concerned, but we never have gone at this sales story thing in a real way. What's the use of telling a sales story and then have a man upset it when you get all through? What we ought to do is upset him before we start and then stick the sales story into him. As long as he has the last wallop in his hand what chance have we?"

"None!" agreed Tommy.

"Well, then," replied Reilly, "let's go at it. We'll have a sales meeting on the subject to-morrow morning. We'll get the story in shape this afternoon and shoot it the first thing in the morning when all the boys are here."

"Now"—and Reilly drew over his old familiar and useful scratch pad—"let's see. We used to sell something like this: First, appearance; next, comfort; next, performance; next, price; and finally, service—and darned little said about it. We're selling car performance and value, not giving away service."

"But now what has happened to our sales story. The man in his own heart

still likes appearance, comfort, performance and all the other things, but he is living in changed times; he has changed his habits of living and he has acquired a few false ideas about what he should and should not do.

"One of the things he has gotten into his head is that he shouldn't spend money for anything except boots and shoes and Irish potatoes, and that's what we've got to do before we can sell him a car. We tell our 1917 sales story and after we get all through he trots out his pseudo patriotism and falls back on that."

"What we must do is this: We must show him why it is the right thing to do to buy a car if a car will be useful to him. Therefore let us set down as the first sales point of our 1918 story the word 'efficiency.'"

"We point out that in these times our whole nation must be more efficient, every man and every business. We must cover the ground in faster time, we must utilize every minute of the day, we must keep ourselves in good health, we must keep our brains clear and our hearts strong. If we can save fifteen minutes in the morning by going to work in a car that is what we should do. If we can get out in a car on a Sunday and put some red blood into our veins it is unpatriotic not to do it."

"If we are running a business and cars will save time for our salesmen and take some of the load off the railroads and street cars it is up to us to do our bit in speeding up the men and relieving the railroads. There is no business efficiency in paying a salesman money for riding on the street cars if a car will help him cover the distance faster."

"Furthermore, unless a person, especially one's wife and kids, get the right sort of recreation, they become gloomy under the cloud of war. If the whole nation came under this cloud we would lose the war. The cloud of gloom is telling on Germany right now. Let's make it gloomier over there by making it

brighter over here. Our boys will fight better."

"Then, let us say for No. 2, 'spend, not hoard.' No man must get the idea that money in a sock is worth a damn to the country. The only money that will help win the war is that which amasses wealth by flowing through the channels of trade. If the man stops buying cars there are 600 men with families at the Sennett plant who will be out of jobs and the town isn't big enough to provide work for them. The factory is now doing all the war work it can get and will have to shut down the part that employs these 600 men if the cars can't be sold."

"The same thing applies to every so-called luxury industry. All business keeps money flowing. How can our 600 men buy food and clothing, let alone pay for the Liberty Bonds they have subscribed for, unless they can have work? They can't move somewhere else, and if they could there is no place to go."

"And then there is, third, this: 'Spend wisely.' By that I mean, don't waste. Get value for your money. Buy legitimate goods. When you spend a dollar make sure it is a dollar's worth you get. And how can the prospect make sure he is spending wisely? By buying our car, of course. But why is our car a wise buy? At this point we tell him the old 1917 sales story and when we get through he hasn't anything to say—or, at least, not as much as before."

"As in all sales work, we must first sweep doubts, objections and arguments from the man's mind before we try to sell him. Right now his doubts are based upon his desire to be patriotic and his failure to understand what real patriotism is. So, we hitch a new 1918 beginning onto our old sales story and go merrily on sending the shekels into the pay envelopes at Sayanna and buying clothes for that new baby down at Georgie Baxter's. Eh, George?"

But George only grinned.

Fuel Greatest Problem*(Continued from page 12)*

which confronts us and yet we are not giving it proper consideration.

"If we had spent from \$500,000 to \$1,000,000 a year for the past few years in experimenting with fuel, we would have no fuel problem on our hands to-day. We have got to be so organized that we can run this winter on last summer's sunshine.

"We have had the Stone Age and the Iron Age, but the next 700 years will be the Agricultural Age. In this connection it is well to consider what an inefficient machine the horse is from a power standpoint. We have to-day 25,000,000 hp. from horses. To secure this we have to raise grain on 125,000,000 acres. All of this is nothing more than so much fuel for the horse motor.

"It is quite certain that if we applied ourselves to the problem we could get back a far better return in power from that acreage. But instead the government makes it impossible for us to do so by putting a tax of \$1 a gallon on the fuel which we could make from the grain, because some poor degenerate persons may drink some of the stuff and kill themselves. I am not stating that alcohol is the eventual fuel, but it is certainly a starting point.

"This country's greatest asset is its ability to turn out large quantities of high grade products. It is this asset which is going to be of the greatest importance to us in winning the war, and yet the Government ties our hands sometimes on this very asset. I have seen bayonets rejected because they were .003 in. too narrow in the blade. What difference does it make when you are sticking a German with a bayonet if the blade is .003 in. too narrow? I have seen truck wheels rejected because the holes in the wheels were .0005 in. too large.

"If there is one message we ought to carry to the government it is to study the practical conditions under which the product must operate and then let us alone to do those things which we know so well how to do. If it will do the work, pass it and do not be guided by what some high-minded technician wants.

"Criticism given to-day should be constructive, not fault finding. I have heard people say, 'Isn't it true that the Liberty engine is the heaviest airplane engine ever built in this country?' Nowhere in the world is there another engine developing 400 hp. that only weighs 875 lb.

"Up to a year ago we only built 150 airplanes a year and we could get all the material we wanted. Now that we are building great quantities it is harder to get the materials and yet we are sending abroad planes to-day that are better than any which have ever flown.

"Germany prepared for this war in every way. You do not mind fighting a man fairly. But when he holds up his hands in the air and says, 'I am unprepared,' and then the next minute grabs a gun and starts shooting, he is not playing the game fairly, so it is just as well not to pay too much attention to these stories of strikes that are coming out of Germany just now."

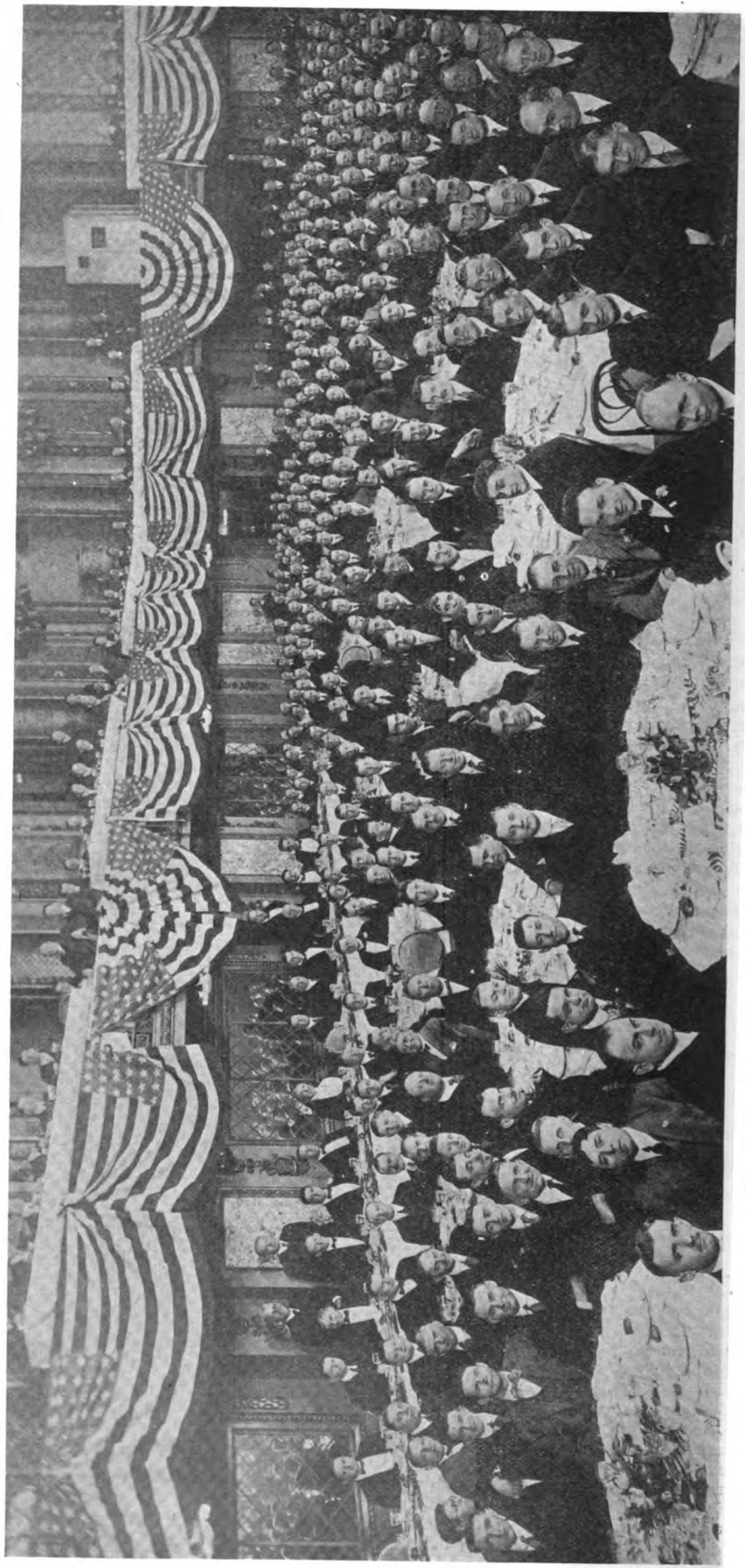


Photo by Kaufmann & Fabry Co.

These are Maxwell representatives, brought together during the show at Chicago

How Rochester Dealers Are Putting Their Cars Across

but the child wasn't there at all

A woman came home one day and found her maid crying.
"What's what is the trouble?"

"Oh, ma'am. I was down after just now and saw that big ham hanging from the ceiling by a small string. As I saw it there I got to thinking. Suppose I was married and had a little baby and the baby was playing on the floor under the ham and the string broke and the ham fell—the baby would be killed. Ah! it's awful!"

The Same Story in Other Words

When this war broke out the first cry was: "We will have to stop wearing glasses and everybody go into mourning because we can't get any dyes. The dyes are all made in Germany."

In an effort to trace the rumor it was found "they" said so. But there is a new industry in America to-day—dye making.

"They" said, at the beginning of the war, people would have to stop wearing glasses because all the good optical glass was made in England and Germany.

But more people are wearing glasses and better glasses now. Optical glass is made in America now—made right here in Rochester.

"They" said our children couldn't have any toys for Christmas because all the toys were made in Germany. But there are more toys than ever for the children, better toys because they are American-made.

Don't punish American inventive genius and discourage American industry by wearing black, by spinning around without glasses, by taking the heart and soul out of Christmas in not buying toys for the children.

Buy toys for the children.
Buy happiness for yourself.
Buy.

**"THEY"—The Enemy
"WE"—Americans**

"they" torpedoed the Lusitania

Now, by rumors, "they" seek to wreck business.
But YOU will stop them.

Just keep business good.

Stimulate business by buying. Buy wisely, of course, but buy.

When this war broke out, back in 1914, "they" said business throughout the world would be bad.

But "we" stepped in and met the sudden demand for arms and ammunition. "We" could do this because we were ready—we were busy.

When you want something done, give it to a busy man.

A country commercially dead can't fight.

"They" know it.

That is why "they" spread rumors in the hope of holding up business.

America busy is always America victorious.

Producers can't produce unless there is a demand for what they grow or make.

Naturally, if you stimulate business by buying more, you will stimulate demand—stimulate demand and you will increase production.

Keep on buying and assure prosperity.

Buy what your fellow tradesman has to sell and he will buy what you have to sell.

SELL and BUY

**"They"—The Enemy.
"We"—Americans.**

"they"

—have broken up families and filled divorce courts, thrown business men into bankruptcy, wrecked the lives of men in public life by "their" rumors.

"they"

—working by rumor, just as "they" are now working in this country, undermined the national life of Russia.

"they"

—are the rumor mongers now spreading the gospel of pessimism, seeking to crush the spirit of optimism and who later will demand a "Bolsheviki peace."

"we"

—are standing by America, keeping American industries busy, strengthening America for the fight, lending our arms to the cause of Liberty for all the people of the world.

The task is now squarely up to America to win the war.

"we"

—will keep America busy by buying and selling.

America busy will be America victorious.

Business, more business, and still better business all over America will win the war.

If you spread rumors that certain business you are a "they."

If you help business by doing more business and less talking you are a "we."

The choice is up to you.

**"THEY"—The Enemy
"WE"—Americans**

"they" are the Business Bolsheviki of America

From a distance it would seem that the Bolsheviki group of Russia is made up of hired tools of Germany and their well-meaning but horribly mistaken and misled dupes.

"They," the Business Bolsheviki of America, are, in varying degrees, also the tools of Germany—traitors, often unconscious traitors it's true, but none the less unfaithful to our country and its cause.

These Business Bolsheviki tell you to stop buying, when common sense tells you to keep on buying.

The Government said: "Use sugar sparingly in order that Europe may have some." The Business Bolsheviki started a sugar scarcity scare, bought up every pound in sight and temporarily caused a real scarcity.

Another group of Bolsheviki has been telling you the Government is about to take all the gasoline, although it has been demonstrated that the supply is ample—that the gasoline wasted in this country would alone serve all the needs of the Government. "They" point to gasoline at over \$1.00 a gallon in England, although long before the war, when gasoline was 15 cents here, England was paying 60 cents or more a gallon.

You can continue to run your cars and buy new cars in America, war or no war.

Beware of the American Business Bolsheviki!

**"THEY"—The Enemy
"WE"—Americans**

Money will win the war

Where shall "We" GET that money?

ONLY by "Keeping up" Business.

If you SAY or DO anything to harm business, you aid the enemy.

"We" Help Business.

"They" Hurt Business.

YOU belong to one class or the other.

There is no middle class.

The "We's" are in the majority NOW.

Be a "We."

Boost Business

**"THEY"—The Enemy
"WE"—Americans**

the American Eagle won't sell his wings:

Suggest to the American Eagle, perching on the edge of his rock, that his wings are merely "pleasure wings" and that he should sell his left wing and "save the money," he'll laugh and sail across the valley to get away from a man who would make such a fool suggestion.

But it's no more foolish than the suggestion of the Business Bolsheviki of America who tell you to stop buying and selling, to stop manufacturing and trading; in other words to "drop a monkey wrench in the machinery of commerce" and thereby help Germany win the war.

Automobiles are the "wings" of 99 out of 100 men who own them.

Automobiles add hours to their days, days to their years, years to their lives, and life to their years.

The automobile is no longer a business man's pleasure car; it's his necessity, his education, his family doctor, his business partner.

If you haven't got an automobile get one.

When you have decided to get one do not delay.

This year's cars are here. order now and be sure.

**"THEY"—The Enemy
"WE"—Americans**

HERE is the way the wideawake dealers in Rochester, N. Y., are starting a co-operative advertising campaign. They are also proving their sturdy Americanism—and the essential character of the American motor car and truck.

Passenger Cars

MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION	ELECTRIC SYSTEM		IGNITION		CARBU-RETION	TRANSMISSION				RUNNING GEAR				Make of Speedometer	BEARINGS				
												System	Type of Pumps	Make	Voltage		Make	Plug	Make of Carburetor	Fuel Feed	Clutch Type	GEARSET		Final Drive		Car Drives Through	Rear Axle Type	Make of Rear Axle	Torque Taken By	Wheelbase
Abbott.....	6-60 \$1595	6	31x51	20.4	303.1	4.30-1	Cont.	L.H.	H.	P. Sp-Pr.	P. Remy.	6	Remy.	9	Stmng.	V.D.	Unit M.	3	Muncie.	Sp.B	Spring.	122	34x4	SS	Wd	S-E	Stewart.	3 B.	RR	R.
Allen.....	41 1095	4	31x51	22.5	220.1	4.25-1	Own.	L.H.	H.	T. Cir-Sp.	P. A-Lite-2.	6	Conn.	7 1/2	Stmng.	V.P.	Unit M.	3	Own.	Sp.B	Spring.	112	32x4	SS	Wd	S-E	Stewart.	2 BR	RR	R.
American.....	B 1375	6	31x51	23.4	230.1	4.42-1	Rotmbr.	L.H.	H.	P. Sp-Pr.	P. G&D-2.	6	G&D.	6	Zeuth.	V.P.	Unit M.	3	Mech.	Sp.B	Spring.	122	32x4	SS	Wd	S-E	VanS.	3 BP	RR	R.
Anderson.....	20 1435	6	31x51	25.3	224.1	4.58-1	Cont.	L.H.	H.	P. Sp-Pr.	P. West-2.	6	Conn.	6	Zeuth.	V.P.	Unit M.	3	Destn.	Sp.B	Spring.	120	33x4	SS	Wd	S-E	Stewart.	3 B.	RR	R.
Anderson-De Luxe.....	6-18 2200	8	31x51	29.4	303.1	4.25-1	Own.	L.H.	H.	P. Sp-Pr.	P. Bijur-2.	6	Remy.	6	Rayld.	V.P.	Unit M.	3	Own.	Sp.B	Spring.	130	35x4	SS	Wd	1 Ell	VanS.	4 R.	R.	P.
Apperson.....	8-18 2250	8	31x51	33.8	331.8	4.25-1	Own.	L.H.	H.	T. Cir-Sp.	P. Bijur-2.	6	Remy.	6	Rayld.	V.P.	Unit M.	3	Own.	Sp.B	Spring.	130	35x4	SS	Wd	1 Ell	VanS.	4 R.	R.	P.
Apperson.....	6-39 1345	6	31x51	25.3	224.1	4.42-1	T-Hart.	L.H.	H.	P. Sp-Pr.	P. Remy-2.	6	Remy.	6	Rayld.	V.P.	Unit M.	3	G-Lees.	Sp.B	Spring.	130	34x4	SS	Wd	S-E	Stewart.	3 B.	RR	R.
Auburn.....	6-14 1885	6	31x51	29.4	303.1	4.08-1	Cont.	L.H.	H.	P. Sp-Pr.	P. Delco-2.	6	Remy.	6	Rayld.	V.P.	Unit M.	3	G-Lees.	Sp.B	Spring.	130	35x4	SS	Wd	S-E	Stewart.	3 B.	RR	R.
Austin.....	3750	12	21x51	39.7	389.3	3.75-1	Willy.	L.H.	H.	P. P.	G. Delco-2.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	Muncie.	Sp.B	Spring.	142	34x4	QD	Wd	DCant.	Stewart.	3 B.	RR	R.
Ball.....	18 995	4	31x44	22.5	187.7	4.08-1	Lyng.	L.H.	H.	T. Cir-Sp.	P. Dynto-2.	6	A.Kent.	7	Zeuth.	V.D.	Unit M.	3	Covert.	Bevl	Spring.	112	32x3	SS	Wd	1 Ell	Stewart.	2 R.	R.	B.
Biddle.....	H 2650	4	31x51	22.5	226.4	4.40-1	Buda.	L.H.	H.	T. Cir-Sp.	P. G&D-2.	6	Eismn.	7	Zeuth.	V.P.	Unit M.	4	Own.	Sp.B	Spring.	121	32x4	QD	Wd	S-E	Warner.	3 BR	B.	B.
Bour-Davis.....	18A 1680	4	31x51	22.5	220.0	4.00-1	Cont.	L.H.	H.	T. Cir-Sp.	G. West.	6	West.	6	Miller.	V.P.	Unit M.	3	Detroit.	Sp.B	Spring.	118	32x4	QD	Wd	S-E	VanS.	3 B.	B.	B.
Bour-Davis.....	18B 1785	6	31x51	29.4	303.0	4.07-1	Cont.	L.H.	H.	P. Cir-Sp.	G. West.	6	West.	6	Stmng.	V.P.	Unit M.	3	Own.	Sp.B	Spring.	118	32x4	QD	Wd	S-E	VanS.	3 B.	B.	B.
Brewster.....	Chassis 7200	4	40x1	25.6	276.0	4.50-1	Own.	K.C.	P.	P. Cir-Sp.	G. U.S.L.	12	Bosch.	6	Zeuth.	V.C.	Unit T.	3	Own.	Sp.B	Spring.	125	34x4	SS	Wd	Cant.	Stewart.	2 BR	RR	R.
Briscoe.....	E-4-34 725	4	31x51	16.3	163.0	4.25-1	Own.	L.H.	H.	P. Cir-Sp.	P. A-Lite.	6	Conn.	6	Buck.	V.C.	Unit X.	3	Own.	Bevl	Spring.	104	30x3	C	Wd	S-E	Stewart.	2 BR	RR	R.
Buck.....	E-4-37 1185	4	31x44	18.2	170.0	4.08-1	Own.	L.H.	H.	P. Cir-Sp.	G. Delco-1.	6	Delco.	6	Marvel.	V.C.	Unit M.	3	Own.	Bevl	Spring.	106	31x4	C	Wd	S-E	Stewart.	3 B.	RR	R.
Buck.....	E-6-44 1265	6	31x44	27.3	242.0	4.08-1	Own.	L.H.	H.	P. Cir-Sp.	P. Delco.	6	Delco.	6	Marvel.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	118	31x4	SS	Wd	Cant.	Stewart.	4 B.	R.	R.
Buck.....	E-6-46 1695	6	31x44	27.3	242.0	4.08-1	Own.	L.H.	H.	P. Cir-Sp.	P. Delco.	6	Delco.	6	Marvel.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	118	31x4	SS	Wd	Cant.	Stewart.	4 B.	R.	R.
Buck.....	E-6-47 1845	6	31x44	27.3	242.0	4.61-1	Own.	L.H.	H.	P. Cir-Sp.	P. Delco.	6	Delco.	6	Marvel.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	124	34x4	SS	Wd	Cant.	Stewart.	4 B.	R.	R.
Buck.....	E-6-49 1495	6	31x44	27.3	242.0	4.61-1	Own.	L.H.	H.	P. Cir-Sp.	P. Delco.	6	Delco.	6	Marvel.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	124	34x4	SS	Wd	Cant.	Stewart.	4 B.	R.	R.
Buck.....	E-6-50 2175	8	31x51	31.2	314.0	4.43-1	Own.	L.C.	P.	P. Cir-Sp.	P. Delco-1.	6	Delco.	6	Own.	P.D.	Unit M.	3	Own.	Sp.B	Spring.	125	35x5	SS	Wd	Plat.	Stewart.	3 BR	R.	R.
Cadillac.....	E-57 2805	8	31x51	29.4	303.0	4.45-1	Cont.	L.H.	H.	P. Sp-Pr.	P. West.	6	West.	6	Rayld.	V.P.	Unit M.	3	G-Lees.	Sp.B	Spring.	125	35x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Case.....	U 1875	6	31x51	25.3	224.0	4.75-1	Own.	L.C.	P.	P. Sp-Pr.	P. West-2.	6	West.	6	Rayld.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	122	34x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Chalmers.....	6-30 1595	6	31x44	25.3	224.0	4.75-1	Own.	L.C.	P.	P. Sp-Pr.	P. West-2.	6	West.	6	Rayld.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	122	34x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Chandler.....	25 1595	6	31x51	29.4	289.0	4.40-1	Own.	L.C.	P.	P. Sp-Pr.	P. West.	6	Bosch.	7	Rayld.	V.P.	Unit M.	3	Own.	Sp.B	Spring.	123	34x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Chevrolet.....	490 685	6	31x44	21.7	171.0	3.65-1	Own.	L.H.	H.	T. Cir-Sp.	P. A-Lite-2.	6	Remy.	6	Zeuth.	V.C.	Unit M.	3	Own.	Bevl	Spring.	102	30x3	C	Wd	Cant.	Stewart.	3 B.	R.	C&C
Chevrolet.....	D4 D5 1385	8	31x51	36.4	286.9	4.25-1	Own.	L.H.	H.	T. Cir-Sp.	P. A-Lite-2.	6	Remy.	6	Zeuth.	V.C.	Unit M.	3	Own.	Bevl	Spring.	108	33x4	SS	Wd	Cant.	Stewart.	3 BP	R.	C&C
Chevrolet.....	1785	6	31x44	21.7	224.0	4.25-1	Own.	L.H.	H.	P. Sp-Pr.	G. A-Lite-2.	6	Remy.	6	Zeuth.	V.C.	Unit M.	3	Own.	Bevl	Spring.	120	34x4	SS	Wd	Cant.	Stewart.	3 BP	R.	C&C
Cole.....	870 1995	8	31x44	30.2	346.4	4.45-1	North.	L.H.	H.	P. Sp-Pr.	G. Delco-2.	6	Delco.	6	Stmng.	V.C.	Unit M.	3	North.	Sp.B	Spring.	127	35x4	SS	Wd	S-E	Warner.	3 B.	R.	R.
Columbia.....	C D 1350	8	31x44	25.3	224.1	4.75-1	Cont.	L.H.	H.	P. Sp-Pr.	P. Remy.	6	A.Kent.	6	Stmng.	V.C.	Unit M.	3	Warner.	Sp.B	Spring.	125	32x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Comet.....	C-50 1285	6	31x51	29.4	289.0	4.50-1	Lyng.	L.H.	H.	P. Sp-Pr.	P. Dynto.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	Mech.	Sp.B	Spring.	125	32x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Commonwealth.....	C-40 995	4	31x51	19.6	192.0	4.00-1	Lyng.	L.H.	H.	P. Cir-Sp.	P. Dynto-2.	6	A.Kent.	6	Stmng.	V.D.	Unit M.	3	Mech.	Sp.B	Spring.	125	32x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Crawford.....	4-40 2250	6	31x51	19.6	192.0	4.08-1	Cont.	L.H.	H.	P. Cir-Sp.	P. West-2.	6	Bosch.	6	Stmng.	V.P.	Unit M.	3	Own.	Sp.B	Spring.	124	32x4	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Crow-Ekhart.....	CE-36 995	4	31x51	19.6	192.0	4.25-1	Own.	L.H.	H.	T. Cir-Sp.	G. Dynto-2.	6	Conn.	6	Zeuth.	V.P.	Unit M.	3	Own.	Bevl	Spring.	115	32x3	SS	Wd	S-E	Stewart.	3 B.	R.	R.
Cunningham.....	V 4250	8	31x51	45.0	442.0	3.08-1	Own.	L.H.	H.	P. Pr.	G. West-2.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	B-Lipe.	Sp.B	Spring.	132	35x5	Opt.	Opt.	S-E	Warner.	3 BR	R.	R.
Daniels.....	B 4750	8	31x51	33.8	332.0	4.45-1	Her-Sp.	L.H.	H.	P. Pr.	G. West-2.	6	West.	6	Zeuth.	V.D.	Unit M.	3	B-Lipe.	Sp.B	Spring.	127	34x4	QDR	Wd	S-E	Warner.	3 BR	R.	R.
Davis.....	H. I & K 1485	6	31x44	25.3	224.0	4.58-1	Cont.	L.H.	H.	P. Sp-Pr.	P. Delco-2.	6	Delco.	6	Stmng.	V.C.	Unit M.	3	Warner.	Sp.B	Spring.	119	34x4	QDR	Wd	S-E	Stewart.	3 BP	R.	R.
Davis.....	J & J 1785	6	31x44	29.4	303.0	4.42-1	Cont.	L.H.	H.	P. Sp-Pr.	P. Delco-2.	6	Delco.	6	Stmng.	V.C.	Unit M.	3	Warner.	Sp.B	Spring.	125	34x4	QDR	Wd	S-E	Stewart.	3 BP	R.	R.
Dispatch.....	J 1250	4	31x51	22.5	220.1	4.12-1	Willy.	L.H.	H.	T. Cir-Sp.	G. USL-1	12	Delco.	6	Rayld.	V.D.	Unit M.	4	Own.	Bevl	Spring.	120	30x3	QD	Wd	S-E	Corbin	3 B.	B.	B.
Dodge.....	LS-35 995	4	31x51	16.3	163.0	4.75-1	Lyng.	L.H.	H.	T. Cir-Sp.	P. Dynto-2.	6	Conn.	6	Stmng.	V.D.	Unit M.	3	G-Lees.	Sp.B	Spring.	121	32x3	SS	Wd	S-E	VanS.	2 BR	B.	B.
Dodge-Detroit.....	3750	2	5x30	20.0	314.0	1.25-1	Own.	L.H.	H.	P. Sp-Pr.	P. A-Lite-2.	6	Conn.	6	Stmng.	V.D.	Unit M.	3	Own.	Bevl	Spring.	125	35x5	SS	Wd	S-E	Walsham	2 BR	B.	B.
Dodge.....	3750	4	31x44	24.0	212.3	4.17-1	Own.	L.H.	H.	P. Cir-Sp.	G. A-Lite-2.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	124	32x3	SS	Wd	S-E	Walsham	2 BR	B.	B.
Dodge.....	3750	4	31x44	24.0	212.3	4.17-1	Own.	L.H.	H.	P. Cir-Sp.	G. A-Lite-2.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	124	32x3	SS	Wd	S-E	Walsham	2 BR	B.	B.
Dodge.....	3750	4	31x44	24.0	212.3	4.17-1	Own.	L.H.	H.	P. Cir-Sp.	G. A-Lite-2.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	124	32x3	SS	Wd	S-E	Walsham	2 BR	B.	B.
Dodge.....	3750	4	31x44	24.0	212.3	4.17-1	Own.	L.H.	H.	P. Cir-Sp.	G. A-Lite-2.	6	Delco.	6	Stmng.	V.D.	Unit M.	3	Own.	Sp.B	Spring.	124	32x3	SS	Wd	S-E	Walsham	2 BR	B.	B.
Dodge.....	3750	4	31x44	24.0	212.3	4.17-1	Own.	L.H.	H.	P. Cir-Sp.	G. A-Lite-2.	6	Delco.																	

4	51x4	5500	E-17	Fiat	44.1	584.0	2.75-1	Own	L. S.	C. S.	P. Sp-Pr	G. West-2	6	Bosch	1/2	Own	1/2	Own	P. D.	Amid	4	Own	Sp. B.	Tor. T.	S. F.	Own	Tor. T.	140	35x5	QD	S.E.	Stewart	3 P.	B. B.
4	31x4	360	T	Ford	22.5	176.7	3.64-1	Own	I. H.	A. Pr.	P. Sp-Gr	G. Dynto-1	12	Own	1/2	Own	1/2	Own	P. D.	Plan	2	Own	Sp. B.	Tor. T.	S. F.	Own	Tor. T.	100	30x3	C.	Trans.	None	3 P.	B. B.
9	2050	Franklin			25.3	199.1	4.33-1	Own	I. H.	A. Pr.	P. Sp-Gr	G. Dynto-1	12	A. Kent	1/2	Own	1/2	Own	P. D.	Amid	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	115	32x4	SS	Wd.	Stewart	7 B.	B. B.
45-B	7000	F.R.P.			33.8	445.0	3.00-1	Own	I. H.	A. Pr.	P. Sp-Pr	G. Bosch-2	12	Bosch	1/2	Own	1/2	Own	P. D.	Amid	4	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	140	36x5	SS	Wd.	Opt.	3 B.	B. B.
6-40	1495	Glide			23.4	230.1	4.64-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	West	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	119	34x4	SS	Wd.	Stewart	3 BP.	B. B.
6	1055	Grant			21.6	180.2	4.50-1	Own	L. H.	T. Pr	P. Sp-Pr	G. Bosch-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	114	32x3	SS	Wd.	Stewart	3 BP.	B. B.
					22.5	187.7	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. Dynto-1	6	Conn	1/2	Own	1/2	Own	P. D.	Unit M.	3	G-Lees	Sp. B.	Springs	S. F.	Own	Tor. T.	112	32x3	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	216.6	4.45-1	Widly	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	A-Lite	1/2	Own	1/2	Own	P. D.	Unit M.	3	West	Sp. B.	Springs	S. F.	Own	Tor. T.	118	33x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	A. Kent	1/2	Own	1/2	Own	P. D.	Unit M.	3	Mech	Sp. B.	Springs	S. F.	Own	Tor. T.	122	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	A. Kent	1/2	Own	1/2	Own	P. D.	Unit M.	3	Detroit	Sp. B.	Springs	S. F.	Own	Tor. T.	106	30x3	SS	Wd.	Opt.	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	A. Kent	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	100	28x3	SS	Wd.	Opt.	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1	4.00-1	Own	L. H.	T. Pr	P. Sp-Pr	G. West-2	6	Romy	1/2	Own	1/2	Own	P. D.	Unit M.	3	Own	Sp. B.	Springs	S. F.	Own	Tor. T.	121	34x4	SS	Wd.	Stewart	3 BP.	B. B.
					23.5	230.1																												

MAKE AND MODEL

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		ELECTRIC SYSTEM		IGNITION		CARBURETION	TRANSMISSION				RUNNING GEAR				BEARINGS										
											System	Type of Pump	Make	Voltage	Make	Plug		Make of Carburetor	Fuel Feed	GEARSET		Final Drive	Car Drives Through	Rear Axle Type	Make of Rear Axle	Torque Taken By	Wheelbase	Tire	Rims	Wheels	Rear Springs	N'ce of Speedometer	Number Crankshaft Bearings			
																				Location	Forward													Make	Location	
Oakland	34-E	990	2 1/2 x 4 1/2	19.0	177.0	4.50-1	North	L	H	D	Sp-Pr	G	Remy-2	6	Remy	1/2	Marvel	V.C.	Unit M	3	Warner	Sp.B	Bevel	Springs	F	S-F	Own	Tor.A	128	35x5	QD	Wd	S-E	Wd	S-E	3 Bp.
Oldsmobile	37	1185	2 1/2 x 4 1/2	19.0	177.0	4.50-1	North	L	H	D	Sp-Pr	G	Remy-2	6	Remy	1/2	Marvel	V.C.	Unit M	3	Warner	Sp.B	Bevel	Springs	F	S-F	Own	Tor.A	128	35x5	QD	Wd	S-E	Wd	S-E	3 Bp.
Oldsmobile	45-A	1467	2 1/2 x 4 1/2	26.4	246.7	4.32-1	Own	L	H	P	Pr	G	Remy-2	6	Delco	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	F	F	West M	Springs	112	32x4	SS	Wd	S-E	Wd	S-E	2 Bp.
Olympian	1085	169	3 1/2 x 4 1/2	16.9	149.3	4.75-1	Own	L	H	P	Pr	G	Remy-2	6	Remy	1/2	Stumg	V.C.	Unit X	3	Own	Sp.B	Sp.B	Springs	F	F	West M	Springs	120	34x4	SS	Wd	S-E	Wd	S-E	2 Bp.
Overland	90	795	4 1/2 x 4 1/2	18.2	178.9	4.00-1	Own	L	H	T	Pr	G	Remy-2	6	Conn.	1/2	Tillen	V.C.	Unit X	3	Own	Sp.B	Sp.B	Springs	F	F	Own	Rad Rd	120	32x3	SS	Opt	Trans	Wd	S-E	2 Bp.
Overland	85-B	930	4 1/2 x 4 1/2	27.2	244.0	4.00-1	Own	L	H	P	Pr	G	Remy-2	6	Conn.	1/2	Tillen	V.C.	Unit X	3	Own	Sp.B	Sp.B	Springs	F	F	Own	Tor T	106	31x4	C	Wd	Cont	Wd	S-E	2 Bp.
Overland	85	1130	4 1/2 x 4 1/2	25.3	224.0	4.00-1	Own	L	H	P	Pr	G	Remy-2	6	Conn.	1/2	Tillen	V.C.	Unit X	3	Own	Sp.B	Sp.B	Springs	F	F	Own	Tor T	116	32x4	C	Wd	Cont	Wd	S-E	2 Bp.
Oven Magnetic	W-42	5300	4 1/2 x 4 1/2	8.0	15.8	4.00-1	Own	L	H	P	Pr	G	Remy-2	6	Conn.	1/2	Tillen	V.C.	Unit X	3	Own	Sp.B	Sp.B	Springs	F	F	Own	Tor T	160	30x3	C	Wd	Cont	Wd	S-E	3
Oven Magnetic	M-25	3300	4 1/2 x 4 1/2	38.4	414.7	4.00-1	Own	L	H	P	Pr	G	Remy-2	6	Conn.	1/2	Tillen	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	F	F	Own	Tor T	142	35x5	SS	Wd	S-E	Wd	S-E	3
Oven Magnetic	O-36	3350	4 1/2 x 4 1/2	29.4	303.1	4.00-1	Own	L	H	P	Pr	G	Remy-2	6	Conn.	1/2	Tillen	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	F	F	Own	Tor T	125	34x4	SS	Wd	S-E	Wd	S-E	4
Packard	(3-25)	3700	3 1/2 x 5	43.2	424.1	4.38-1	Own	L	C	P	Pr	G	Remy-2	6	Delco	1/2	Own	P	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Own	Tor.A	128	35x5	QD	Wd	S-E	Wd	S-E	3 Bp.
Packard	3-35	4100	3 1/2 x 5	23.4	230.1	4.41-1	Own	L	H	P	Pr	G	Remy-2	6	Remy	1/2	Stumg	G	Unit M	3	Own	Sp.B	Sp.B	Springs	F	F	Salubry	Tor T	127	35x4	SS	Wd	Cont	Wd	Cont	3 Bp.
Packard	6-55	1775	3 1/2 x 5	29.4	303.1	4.35-1	Own	L	H	P	Pr	G	Remy-2	6	G&D	1/2	Stumg	G	Unit M	3	Own	Sp.B	Sp.B	Springs	F	F	Salubry	Tor T	127	35x4	SS	Wd	Cont	Wd	Cont	3 Bp.
Pan-American	G-5	1500	3 1/2 x 5	23.4	230.1	4.45-1	Own	L	H	P	Pr	G	Remy-2	6	G&D	1/2	Stumg	G	Unit M	3	Own	Sp.B	Sp.B	Springs	F	F	Salubry	Tor T	127	35x4	SS	Wd	S-E	Wd	S-E	3 Bp.
Pan-American	J-7	1295	4 1/2 x 4 1/2	25.4	224.0	4.50-1	Own	L	H	P	Pr	G	Remy-2	6	Delco	1/2	Stumg	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	128	32x4	C	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American	6-45	2340	4 1/2 x 4 1/2	33.8	331.8	4.90-1	Own	L	H	P	Pr	G	Remy-2	6	Bosch	1/2	Ball	V.C.	Unit M	3	Own	Sp.B	Sp.B	Springs	S-F	S-F	Timken	Springs	125	35x4	SS	Wd	Ell	Wd	Ell	3 Bp.
Pan-American																																				

MOTOR WORLD GUIDE

Lamp
Bulbs

Lamp
Bulbs

Car	HEAD LAMPS	SIDE LAMPS	TAIL LAMP	DASH LAMP	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks	Car	HEAD LAMPS	SIDE LAMPS	TAIL LAMP	DASH LAMP	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit.	6-8 15	6-8 4H	6-8 2	6-8 2	15	E.S.	S	Resist.	Dash Edison D.	Lexington 6R.	7 30	6-8 2	6-8 2	6-8 2	15	E.S.	S	D. Bulb.	Dash lamp Edison D.
Allen.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp double.	Liberty.	7 32	6-8 2	6-8 2	6-8 2	5	E.S.	S	Hdamps.	Spotlight, 7 v., 21 cp., double contact.
American.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Locomobile.	6-8 21	6-8 2	6-8 2	6-8 2	10	E.S.	S	Resist.	Tonneau & Spotlight 6-8 v., 2 cp.
Apperson.	6-8 18	6-8 12H	6-8 4	6-8 2	25	E.D.	D	Resist.	Dash lamp Edison D.	McFarlan.	6-8 24	6-8 2	6-8 2	6-8 2	10	E.S.	S	Warner lens.	Dash lamp Edison D.
Auburn 39 B.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Madison.	6-8 15	6-8 2	6-8 2	6-8 2	5	E.S.	S	Series.	Dash lamp Edison D.
Auburn 44.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Matthom A.	12 18	6-8 2	6-8 2	6-8 2	None	E.S.	S	Resist.	Dash lamp Edison D.
Austin.	6-8 24	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Marmon.	6-8 18	6-8 2	6-8 2	6-8 2	15	E.S.	S	Warner lens.	Dash lamp Edison D.
Ball.	6-8 18	6-8 4H	6-8 2	6-8 2	15	E.S.	S	Resist.	Dash lamp Edison D.	Maxwell.	12-16 24	6-8 2	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.
Biddle.	12-16 40	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Mercer.	12-16 24	6-8 2	6-8 2	6-8 2	20	E.S.	S	Clear lens.	Dash lamp Edison D.
Brewster.	6-8 21	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Metc.	12-16 24	6-8 2	6-8 2	6-8 2	50	E.D.	S	Shad rays.	Dash lamp Edison D.
Briscoe.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Mitchell.	6-8 15	6-8 2	6-8 2	6-8 2	20	E.S.	S	Deflect.	Dash lamp Edison D.
Bour Davis.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Moline-Knight.	6-8 15	6-8 2	6-8 2	6-8 2	20	E.S.	S	Warner lens.	Dash lamp Edison D.
Buick.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Moore.	6-8 15	6-8 2	6-8 2	6-8 2	20	E.S.	S	Warner lens.	Dash lamp Edison D.
Cadillac.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Murray.	6-8 18	6-8 2	6-8 2	6-8 2	15	E.D.	S	Warner lens.	Dash lamp Edison D.
Case.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Nash.	6-8 14	6-8 2	6-8 2	6-8 2	2	E.S.	S	Dash lamp double.	Dash lamp Edison D.
Chalmers.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	National.	6-8 18	6-8 2	6-8 2	6-8 2	2	E.S.	S	Dash lamp double.	Dash lamp Edison D.
Chandler.	6-8 12	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Nelson.	6-8 15	6-8 2	6-8 2	6-8 2	5-30	E.D.	D	Dash lamp double.	Dash lamp Edison D.
Chevrolet.	6-8 12	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Oakland 34-B.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Cole.	6-8 21	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Olympian.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Columbia.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Overland.	6-8 15	6-8 2	6-8 2	6-8 2	20	E.S.	S	Series.	Dash lamp Edison D.
Commonwealth.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Owen N-25.	28 21	6-8 2	6-8 2	6-8 2	10	E.D.	D	Dash lamp Edison D.	Dash lamp Edison D.
Crawford.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Paige-Detroit.	6-8 15	6-8 2	6-8 2	6-8 2	20	E.S.	S	Headlamps Edison S.	Dash lamp Edison D.
Crow-Elkhart.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Packard.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Cunningham.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Pan American.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Daniels.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Peerless.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Sutterly.	Dash lamp Edison D.
Davis.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Pierce-Arrow.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
DeSoto.	12-16 21	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Pilot.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Dispatch.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Premier.	6-8 21	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Disc.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Regal.	6-8 21	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Dodge.	12-16 32	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Reo.	6-8 21	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Dorris.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Saxon.	6-8 12	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Dort.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Scotch-Booth.	6-8 12	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Elgin.	6-8 21	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Simplex.	12-16 40	6-8 2	6-8 2	6-8 2	10	E.S.	S	Resist.	Dash lamp Edison D.
Elmer.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Singer.	6-8 32	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Empire.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Standard.	6-8 18	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Fiat.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Stearns.	12-16 24	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Ford.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Stearns SK8.	12-16 24	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Franklin.	12-16 21	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	SK-4.	12-16 18	6-8 2	6-8 2	6-8 2	2	E.S.	S	Warner lens.	Dash lamp Edison D.
Gladiator.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Stutz.	6-8 21	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Grant.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Stutz.	6-8 21	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Hal.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Sun.	6-8 18	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
HAL TWELVE.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Vello.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Halladay.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Westcott.	6-8 15	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Harmon.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	White.	12-16 24	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Haynes.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Willy-Knight.	12-16 24	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Hollier.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Winton.	6-8 18	6-8 2	6-8 2	6-8 2	2	E.S.	S	Resist.	Dash lamp Edison D.
Hudson.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.	Woods.	6-8 25	6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Hupmobile.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.		6-8	6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Inter-State.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Jackson.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Jones.	6-8 21	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Jordan.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
King.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Kiesel.	6-8 18	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.
Kline.	6-8 15	6-8 4H	6-8 2	6-8 2	20	E.S.	S	Resist.	Dash lamp Edison D.			6-8 2	6-8 2	6-8 2	10	E.D.	D	Resist.	Dash lamp Edison D.

ABBREVIATIONS: C.B.—Circuit Breaker. D.—Double wiring system. E.D.—Edison double contact. E.S.—Edison single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance S.—Single wiring system. Series—Series connection.

Tires
and Tubes

MOTOR WORLD GUIDE

Tires
and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	36x3½	34x3½	32x4	33x4	35x4	36x4	32x4½	34x4½	35x4½	36x4½	37x4½	38x5½
ACME	Plain	16.00	17.20	18.10	24.40	25.80	27.50	29.80	31.90	33.90	32.30	34.30	35.50	36.70	38.00	44.50
	Kam Tread	17.00	18.20	19.10	25.60	27.00	28.70	31.00	33.10	35.10	33.50	35.50	36.70	38.00	39.30	45.80
	Double	18.40	19.60	20.50	26.80	28.20	29.90	32.20	34.30	36.30	34.70	36.70	37.90	39.20	40.50	47.00
	Hemisphere	20.30	21.50	22.40	28.80	30.20	31.90	34.20	36.30	38.30	36.70	38.70	39.90	41.20	42.50	49.00
ADVANCE	Gray and Red Tubes	3.55	3.85	4.15	8.45	8.85	9.05	9.25	9.45	9.65	7.40	7.60	7.75	7.95	8.15	8.35
	Plain	12.75	13.40	14.10	20.40	22.80	25.80	28.75	30.75	32.00	27.25	29.25	30.50	31.75	33.00	39.50
	Non-Skid	13.35	14.10	14.80	21.00	23.40	26.40	29.35	31.35	32.60	27.85	29.85	31.10	32.35	33.60	40.10
	Gray Tubes	3.60	3.90	4.20	8.50	8.90	9.10	9.30	9.50	9.70	7.45	7.65	7.80	8.00	8.20	8.40
AJAX	Plain	13.65	14.45	15.15	22.55	26.95	28.85	30.25	31.65	33.05	20.80	22.10	23.45	24.80	26.15	32.65
	Non-Skid	14.25	15.05	15.75	23.15	27.55	29.45	30.85	32.25	33.65	21.40	22.70	24.05	25.40	26.75	33.25
	Gray Tubes	3.20	3.50	3.80	4.10	4.40	4.70	4.85	5.15	5.45	6.05	6.25	6.55	6.85	7.15	7.45
	Red Tubes	3.60	3.90	4.20	4.50	4.80	5.10	5.25	5.55	5.85	6.45	6.65	6.95	7.25	7.55	7.85
AMAZON	Ribbed	16.75	17.65	18.55	25.05	29.45	31.35	32.75	34.15	35.55	22.90	24.30	25.65	27.05	28.45	34.95
	Non-Skid	17.35	18.25	19.15	25.65	30.05	31.95	33.35	34.75	36.15	23.50	24.90	26.25	27.65	29.05	35.55
	Gray Tubes	3.15	3.50	3.85	4.25	4.60	4.95	5.30	5.65	6.00	6.35	6.70	7.05	7.40	7.75	8.10
	Red-Gray Tubes	3.15	3.50	3.85	4.25	4.60	4.95	5.30	5.65	6.00	6.35	6.70	7.05	7.40	7.75	8.10
AMERICAN	Ribbed or Plain	15.00	16.00	17.00	24.05	28.45	30.35	31.75	33.15	34.55	23.30	24.70	26.05	27.45	28.85	35.35
	Triple A Non-Skid	16.00	17.00	18.00	25.05	29.45	31.35	32.75	34.15	35.55	24.30	25.70	27.05	28.45	29.85	36.35
	Seal Brown Tubes	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.50
	Red Indian Tubes	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75
ARABIAN	Fluted Tread	15.00	16.00	17.00	24.05	28.45	30.35	31.75	33.15	34.55	23.30	24.70	26.05	27.45	28.85	35.35
	Non-Skid	16.00	17.00	18.00	25.05	29.45	31.35	32.75	34.15	35.55	24.30	25.70	27.05	28.45	29.85	36.35
	Gray Tubes	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.75
	Red Tubes	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.75
ARCADIA	Plain	14.00	15.00	16.00	22.25	27.65	29.55	30.95	32.35	33.75	20.40	21.80	23.15	24.55	25.95	32.45
	Non-Skid	15.00	16.00	17.00	23.25	28.65	30.55	31.95	33.35	34.75	21.40	22.80	24.15	25.55	26.95	33.45
	Gray Tubes	3.60	3.70	3.80	4.00	4.20	4.40	4.60	4.80	5.00	5.20	5.40	5.60	5.80	6.00	6.20
	Red Tubes	3.25	3.35	3.45	3.55	3.65	3.75	3.85	3.95	4.05	4.15	4.25	4.35	4.45	4.55	4.65
ARCHER	Ribbed Tread	14.00	15.00	16.00	22.25	27.65	29.55	30.95	32.35	33.75	20.40	21.80	23.15	24.55	25.95	32.45
	Non-Skid	15.00	16.00	17.00	23.25	28.65	30.55	31.95	33.35	34.75	21.40	22.80	24.15	25.55	26.95	33.45
	Gray Tubes	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
	Red Tubes	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
ARMSTRONG	Red Tubes	4.00	4.50	4.75	4.95	5.20	5.40	5.60	5.80	6.00	6.00	6.10	6.25	6.40	6.55	6.70
	Plain	19.00	20.00	21.00	27.00	31.25	33.00	34.50	36.00	37.50	38.00	39.00	40.00	41.00	42.00	43.00
	Non-Skid	21.25	22.25	23.25	29.25	33.50	35.25	36.75	38.25	39.75	40.25	41.25	42.25	43.25	44.25	45.25
	Plain Card	35.20	36.20	37.20	43.20	47.50	49.25	50.75	52.25	53.75	54.25	55.25	56.25	57.25	58.25	59.25
BALTIMORE	Non-Skid Card	39.65	40.65	41.65	47.65	51.95	53.70	55.20	56.70	58.20	58.70	59.70	60.70	61.70	62.70	63.70
	Concord	20.17	20.64	21.11	25.07	29.32	31.07	32.57	34.07	35.57	36.07	37.07	38.07	39.07	40.07	41.07
	Box Tread	22.17	22.64	23.11	27.07	31.32	33.07	34.57	36.07	37.57	38.07	39.07	40.07	41.07	42.07	43.07
	WFL-Lux Non-Skid	3.25	3.34	3.44	4.30	4.45	4.60	4.75	4.90	5.05	5.15	5.30	5.45	5.60	5.75	5.90
BATAVIA	Plain	14.10	15.10	16.10	22.10	26.35	28.10	29.60	31.10	32.60	21.10	22.60	24.10	25.60	27.10	28.60
	Ribbed	14.35	15.35	16.35	22.35	26.60	28.35	29.85	31.35	32.85	21.35	22.85	24.35	25.85	27.35	28.85
	Security Tread	14.40	15.40	16.40	22.40	26.65	28.40	29.90	31.40	32.90	21.40	22.90	24.40	25.90	27.40	28.90
	Gray Tubes	2.95	3.05	3.15	3.45	3.65	3.80	4.00	4.20	4.40	4.60	4.80	5.00	5.20	5.40	5.60
BERGOUNGAN	Plain	14.85	15.70	16.55	22.55	26.80	28.55	29.95	31.35	32.75	21.55	23.00	24.40	25.80	27.20	28.60
	Non-Skid	15.85	16.70	17.55	23.55	27.80	29.55	30.95	32.35	33.75	22.55	24.00	25.40	26.80	28.20	29.60
	Gray Tubes	3.75	3.85	3.95	4.15	4.35	4.55	4.75	4.95	5.15	5.35	5.55	5.75	5.95	6.15	6.35
	Red Tubes	3.75	3.85	3.95	4.15	4.35	4.55	4.75	4.95	5.15	5.35	5.55	5.75	5.95	6.15	6.35
BESAW	Bladder Non-Skid	15.70	16.55	17.40	23.40	27.65	29.40	30.80	32.20	33.60	22.40	23.80	25.20	26.60	28.00	29.40
	Non-Skid	16.70	17.55	18.40	24.40	28.65	30.40	31.80	33.20	34.60	23.40	24.80	26.20	27.60	29.00	30.40
	Gray Tubes	3.05	3.15	3.25	3.55	3.75	3.95	4.15	4.35	4.55	4.75	4.95	5.15	5.35	5.55	5.75
	Red Tubes	3.05	3.15	3.25	3.55	3.75	3.95	4.15	4.35	4.55	4.75	4.95	5.15	5.35	5.55	5.75
BOONE	Smooth	14.20	15.05	15.90	21.90	26.15	27.90	29.30	30.70	32.10	21.90	23.30	24.70	26.10	27.50	28.90
	Ribbed Non-Skid	15.60	16.45	17.30	23.30	27.55	29.30	30.70	32.10	33.50	23.30	24.70	26.10	27.50	28.90	30.30
	Special Non-Skid	16.00	16.85	17.70	23.70	27.95	29.70	31.10	32.50	33.90	23.70	25.10	26.50	27.90	29.30	30.70
	Black Tubes	3.95	4.05	4.15	4.35	4.55	4.75	4.95	5.15	5.35	5.55	5.75	5.95	6.15	6.35	6.55
BOWERS	Plain	18.55	19.65	20.75	26.75	31.00	32.75	34.15	35.55	36.95	26.75	28.15	29.55	30.95	32.35	33.75
	Gray Tread	20.00	21.10	22.20	28.20	32.45	34.20	35.60	37.00	38.40	28.20	29.60	31.00	32.40	33.80	35.20
	Gray Tubes	3.30	3.40	3.50	3.70	3.90	4.10	4.30	4.50	4.70	4.90	5.10	5.30	5.50	5.70	5.90
	Red Tubes	3.30	3.40	3.50	3.70	3.90	4.10	4.30	4.50	4.70	4.90	5.10	5.30	5.50	5.70	5.90

Name	28x3	30x3	32x3	30x3 1/2	31x3 1/2	32x3 1/2	34x3 1/2	36x3 1/2	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4 1/2	33x4 1/2	34x4 1/2	35x4 1/2	36x4 1/2	37x4 1/2	35x5	36x5	37x5	37x5 1/2	38x5 1/2																																			
BREAENDER	qs13.95 qs16.20 qs18.45 qs20.70 qs22.95 qs25.20 qs27.45 qs29.70 qs31.95	qs14.30 qs16.45 qs18.60 qs20.75 qs22.90 qs25.05 qs27.20 qs29.35 qs31.50	qs18.10 qs21.00 qs23.90 qs26.80 qs29.70 qs32.60 qs35.50 qs38.40 qs41.30	qs18.35 qs21.30 qs24.25 qs27.20 qs30.15 qs33.10 qs36.05 qs39.00 qs41.95	qs19.15 qs22.10 qs25.05 qs28.00 qs30.95 qs33.90 qs36.85 qs39.80 qs42.75	qs21.30 qs24.20 qs27.15 qs30.10 qs33.05 qs36.00 qs38.95 qs41.90 qs44.85	qs24.05 qs27.00 qs30.00 qs33.00 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00	qs24.05 qs27.00 qs30.00 qs33.00 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00	qs27.05 qs30.00 qs33.00 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00 qs51.00	qs28.20 qs31.15 qs34.10 qs37.05 qs40.00 qs43.00 qs46.00 qs49.00 qs52.00	qs28.70 qs31.65 qs34.60 qs37.55 qs40.50 qs43.50 qs46.50 qs49.50 qs52.50	qs30.15 qs33.10 qs36.05 qs39.00 qs42.00 qs45.00 qs48.00 qs51.00 qs54.00	qs30.80 qs33.75 qs36.70 qs39.65 qs42.60 qs45.55 qs48.50 qs51.45 qs54.40	qs32.65 qs35.60 qs38.55 qs41.50 qs44.45 qs47.40 qs50.35 qs53.30 qs56.25	qs32.90 qs35.85 qs38.80 qs41.75 qs44.70 qs47.65 qs50.60 qs53.55 qs56.50	qs31.90 qs34.85 qs37.80 qs40.75 qs43.70 qs46.65 qs49.60 qs52.55 qs55.50	qs41.25 qs44.20 qs47.15 qs50.10 qs53.05 qs56.00 qs58.95 qs61.90 qs64.85	qs40.05 qs43.00 qs45.95 qs48.90 qs51.85 qs54.80 qs57.75 qs60.70 qs63.65	qs43.25 qs46.20 qs49.15 qs52.10 qs55.05 qs58.00 qs60.95 qs63.90 qs66.85	qs43.95 qs46.90 qs49.85 qs52.80 qs55.75 qs58.70 qs61.65 qs64.60 qs67.55	qs49.40 qs52.35 qs55.30 qs58.25 qs61.20 qs64.15 qs67.10 qs70.05 qs73.00	qs55.90 qs58.85 qs61.80 qs64.75 qs67.70 qs70.65 qs73.60 qs76.55 qs79.50	qs53.35 qs56.30 qs59.25 qs62.20 qs65.15 qs68.10 qs71.05 qs74.00 qs76.95	qs52.95 qs55.90 qs58.85 qs61.80 qs64.75 qs67.70 qs70.65 qs73.60 qs76.55	qs52.95 qs55.90 qs58.85 qs61.80 qs64.75 qs67.70 qs70.65 qs73.60 qs76.55																																				
	Non-Skid Gray Tubes	qs16.45 qs18.60 qs20.75 qs22.90 qs25.05 qs27.20 qs29.35 qs31.50 qs33.65	qs18.60 qs20.75 qs22.90 qs25.05 qs27.20 qs29.35 qs31.50 qs33.65 qs35.80	qs21.00 qs23.90 qs26.80 qs29.70 qs32.60 qs35.50 qs38.40 qs41.30 qs44.20	qs21.30 qs24.25 qs27.20 qs30.15 qs33.10 qs36.05 qs39.00 qs41.95 qs44.85	qs22.10 qs25.05 qs28.00 qs30.95 qs33.90 qs36.85 qs39.80 qs42.75 qs45.70	qs24.20 qs27.15 qs30.10 qs33.05 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00	qs24.05 qs27.00 qs30.00 qs33.00 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00	qs27.05 qs30.00 qs33.00 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00 qs51.00	qs28.20 qs31.15 qs34.10 qs37.05 qs40.00 qs43.00 qs46.00 qs49.00 qs52.00	qs28.70 qs31.65 qs34.60 qs37.55 qs40.50 qs43.50 qs46.50 qs49.50 qs52.50	qs30.15 qs33.10 qs36.05 qs39.00 qs42.00 qs45.00 qs48.00 qs51.00 qs54.00	qs30.80 qs33.75 qs36.70 qs39.65 qs42.60 qs45.55 qs48.50 qs51.45 qs54.40	qs32.65 qs35.60 qs38.55 qs41.50 qs44.45 qs47.40 qs50.35 qs53.30 qs56.25	qs32.90 qs35.85 qs38.80 qs41.75 qs44.70 qs47.65 qs50.60 qs53.55 qs56.50	qs31.90 qs34.85 qs37.80 qs40.75 qs43.70 qs46.65 qs49.60 qs52.55 qs55.50	qs41.25 qs44.20 qs47.15 qs50.10 qs53.05 qs56.00 qs58.95 qs61.90 qs64.85	qs40.05 qs43.00 qs45.95 qs48.90 qs51.85 qs54.80 qs57.75 qs60.70 qs63.65	qs43.25 qs46.20 qs49.15 qs52.10 qs55.05 qs58.00 qs60.95 qs63.90 qs66.85	qs43.95 qs46.90 qs49.85 qs52.80 qs55.75 qs58.70 qs61.65 qs64.60 qs67.55	qs49.40 qs52.35 qs55.30 qs58.25 qs61.20 qs64.15 qs67.10 qs70.05 qs73.00	qs55.90 qs58.85 qs61.80 qs64.75 qs67.70 qs70.65 qs73.60 qs76.55 qs79.50	qs53.35 qs56.30 qs59.25 qs62.20 qs65.15 qs68.10 qs71.05 qs74.00 qs76.95	qs52.95 qs55.90 qs58.85 qs61.80 qs64.75 qs67.70 qs70.65 qs73.60 qs76.55	qs52.95 qs55.90 qs58.85 qs61.80 qs64.75 qs67.70 qs70.65 qs73.60 qs76.55																																				
BRUNSWICK	qs13.30 qs15.60 qs17.90 qs20.20 qs22.50 qs24.80 qs27.10 qs29.40 qs31.70	qs14.35 qs16.65 qs18.95 qs21.25 qs23.55 qs25.85 qs28.15 qs30.45 qs32.75	qs18.45 qs21.35 qs24.25 qs27.15 qs30.05 qs32.95 qs35.85 qs38.75 qs41.65	qs18.25 qs21.15 qs24.05 qs26.95 qs29.85 qs32.75 qs35.65 qs38.55 qs41.45	qs19.60 qs22.50 qs25.40 qs28.30 qs31.20 qs34.10 qs37.00 qs39.90 qs42.80	qs21.35 qs24.25 qs27.15 qs30.05 qs32.95 qs35.85 qs38.75 qs41.65 qs44.55	qs24.20 qs27.10 qs30.00 qs32.90 qs35.80 qs38.70 qs41.60 qs44.50 qs47.40	qs24.05 qs27.00 qs30.00 qs33.00 qs36.00 qs39.00 qs42.00 qs45.00 qs48.00	qs28.45 qs31.35 qs34.25 qs37.15 qs40.05 qs42.95 qs45.85 qs48.75 qs51.65	qs28.45 qs31.35 qs34.25 qs37.15 qs40.05 qs42.95 qs45.85 qs48.75 qs51.65	qs29.05 qs31.95 qs34.85 qs37.75 qs40.65 qs43.55 qs46.45 qs49.35 qs52.25	qs30.45 qs33.35 qs36.25 qs39.15 qs42.05 qs44.95 qs47.85 qs50.75 qs53.65	qs31.20 qs34.10 qs37.00 qs39.90 qs42.80 qs45.70 qs48.60 qs51.50 qs54.40	qs32.60 qs35.50 qs38.40 qs41.30 qs44.20 qs47.10 qs50.00 qs52.90 qs55.80	qs33.10 qs36.00 qs38.90 qs41.80 qs44.70 qs47.60 qs50.50 qs53.40 qs56.30	qs38.85 qs41.75 qs44.65 qs47.55 qs50.45 qs53.35 qs56.25 qs59.15 qs62.05	qs40.05 qs42.95 qs45.85 qs48.75 qs51.65 qs54.55 qs57.45 qs60.35 qs63.25	qs41.35 qs44.25 qs47.15 qs50.05 qs52.95 qs55.85 qs58.75 qs61.65 qs64.55	qs43.95 qs46.85 qs49.75 qs52.65 qs55.55 qs58.45 qs61.35 qs64.25 qs67.15	qs43.95 qs46.85 qs49.75 qs52.65 qs55.55 qs58.45 qs61.35 qs64.25 qs67.15	qs45.80 qs48.70 qs51.60 qs54.50 qs57.40 qs60.30 qs63.20 qs66.10 qs69.00	qs50.75 qs53.65 qs56.55 qs59.45 qs62.35 qs65.25 qs68.15 qs71.05 qs73.95	qs51.55 qs54.45 qs57.35 qs60.25 qs63.15 qs66.05 qs68.95 qs71.85 qs74.75	qs53.80 qs56.70 qs59.60 qs62.50 qs65.40 qs68.30 qs71.20 qs74.10 qs77.00	qs53.80 qs56.70 qs59.60 qs62.50 qs65.40 qs68.30 qs71.20 qs74.10 qs77.00																																				
	Skid Not Gray Tubes	qs16.80 qs18.95 qs21.10 qs23.25 qs25.40 qs27.55 qs29.70 qs31.85 qs34.00	qs18.85 qs21.00 qs23.15 qs25.30 qs27.45 qs29.60 qs31.75 qs33.90 qs36.05	qs21.90 qs24.05 qs26.20 qs28.35 qs30.50 qs32.65 qs34.80 qs36.95 qs39.10	qs21.60 qs23.75 qs25.90 qs28.05 qs30.20 qs32.35 qs34.50 qs36.65 qs38.80	qs23.70 qs25.85 qs28.00 qs30.15 qs32.30 qs34.45 qs36.60 qs38.75 qs40.90	qs25.80 qs27.95 qs30.10 qs32.25 qs34.40 qs36.55 qs38.70 qs40.85 qs43.00	qs27.90 qs30.05 qs32.20 qs34.35 qs36.50 qs38.65 qs40.80 qs42.95 qs45.10	qs30.00 qs32.15 qs34.30 qs36.45 qs38.60 qs40.75 qs42.90 qs45.05 qs47.20	qs32.10 qs34.25 qs36.40 qs38.55 qs40.70 qs42.85 qs45.00 qs47.15 qs49.30	qs32.60 qs34.75 qs36.90 qs39.05 qs41.20 qs43.35 qs45.50 qs47.65 qs49.80	qs33.10 qs35.25 qs37.40 qs39.55 qs41.70 qs43.85 qs46.00 qs48.15 qs50.30	qs33.80 qs35.95 qs38.10 qs40.25 qs42.40 qs44.55 qs46.70 qs48.85 qs51.00	qs35.65 qs37.80 qs39.95 qs42.10 qs44.25 qs46.40 qs48.55 qs50.70 qs52.85	qs35.90 qs38.05 qs40.20 qs42.35 qs44.50 qs46.65 qs48.80 qs50.95 qs53.10	qs34.80 qs36.95 qs39.10 qs41.25 qs43.40 qs45.55 qs47.70 qs49.85 qs52.00	qs36.70 qs38.85 qs41.00 qs43.15 qs45.30 qs47.45 qs49.60 qs51.75 qs53.90	qs38.60 qs40.75 qs42.90 qs45.05 qs47.20 qs49.35 qs51.50 qs53.65 qs55.80	qs40.50 qs42.65 qs44.80 qs46.95 qs49.10 qs51.25 qs53.40 qs55.55 qs57.70	qs42.40 qs44.55 qs46.70 qs48.85 qs51.00 qs53.15 qs55.30 qs57.45 qs59.60	qs44.30 qs46.45 qs48.60 qs50.75 qs52.90 qs55.05 qs57.20 qs59.35 qs61.50	qs46.20 qs48.35 qs50.50 qs52.65 qs54.80 qs56.95 qs59.10 qs61.25 qs63.40	qs48.10 qs50.25 qs52.40 qs54.55 qs56.70 qs58.85 qs61.00 qs63.15 qs65.30	qs50.00 qs52.15 qs54.30 qs56.45 qs58.60 qs60.75 qs62.90 qs65.05 qs67.20	qs51.90 qs54.05 qs56.20 qs58.35 qs60.50 qs62.65 qs64.80 qs66.95 qs69.10	qs53.80 qs55.95 qs58.10 qs60.25 qs62.40 qs64.55 qs66.70 qs68.85 qs71.00	qs53.80 qs55.95 qs58.10 qs60.25 qs62.40 qs64.55 qs66.70 qs68.85 qs71.00																																		
BULL	qs13.50 qs15.80 qs18.10 qs20.40 qs22.70 qs25.00 qs27.30 qs29.60 qs31.90	qs14.00 qs16.30 qs18.60 qs20.90 qs23.20 qs25.50 qs27.80 qs30.10 qs32.40	qs18.30 qs20.60 qs22.90 qs25.20 qs27.50 qs29.80 qs32.10 qs34.40 qs36.70	qs18.00 qs20.30 qs22.60 qs24.90 qs27.20 qs29.50 qs31.80 qs34.10 qs36.40	qs19.50 qs21.80 qs24.10 qs26.40 qs28.70 qs31.00 qs33.30 qs35.60 qs37.90	qs21.00 qs23.30 qs25.60 qs27.90 qs30.20 qs32.50 qs34.80 qs37.10 qs39.40	qs22.50 qs24.80 qs27.10 qs29.40 qs31.70 qs34.00 qs36.30 qs38.60 qs40.90	qs24.00 qs26.30 qs28.60 qs30.90 qs33.20 qs35.50 qs37.80 qs40.10 qs42.40	qs25.50 qs27.80 qs30.10 qs32.40 qs34.70 qs37.00 qs39.30 qs41.60 qs43.90	qs27.00 qs29.30 qs31.60 qs33.90 qs36.20 qs38.50 qs40.80 qs43.10 qs45.40	qs27.50 qs29.80 qs32.10 qs34.40 qs36.70 qs39.00 qs41.30 qs43.60 qs45.90	qs29.00 qs31.30 qs33.60 qs35.90 qs38.20 qs40.50 qs42.80 qs45.10 qs47.40	qs30.50 qs32.80 qs35.10 qs37.40 qs39.70 qs42.00 qs44.30 qs46.60 qs48.90	qs32.00 qs34.30 qs36.60 qs38.90 qs41.20 qs43.50 qs45.80 qs48.10 qs50.40	qs32.50 qs34.80 qs37.10 qs39.40 qs41.70 qs44.00 qs46.30 qs48.60 qs50.90	qs34.00 qs36.30 qs38.60 qs40.90 qs43.20 qs45.50 qs47.80 qs50.10 qs52.40	qs34.50 qs36.80 qs39.10 qs41.40 qs43.70 qs46.00 qs48.30 qs50.60 qs52.90	qs36.00 qs38.30 qs40.60 qs42.90 qs45.20 qs47.50 qs49.80 qs52.10 qs54.40	qs36.50 qs38.80 qs41.10 qs43.40 qs45.70 qs48.00 qs50.30 qs52.60 qs54.90	qs38.00 qs40.30 qs42.60 qs44.90 qs47.20 qs49.50 qs51.80 qs54.10 qs56.40	qs38.50 qs40.80 qs43.10 qs45.40 qs47.70 qs50.00 qs52.30 qs54.60 qs56.90	qs40.00 qs42.30 qs44.60 qs46.90 qs49.20 qs51.50 qs53.80 qs56.10 qs58.40	qs40.50 qs42.80 qs45.10 qs47.40 qs49.70 qs52.00 qs54.30 qs56.60 qs58.90	qs42.00 qs44.30 qs46.60 qs48.90 qs51.20 qs53.50 qs55.80 qs58.10 qs60.40	qs42.50 qs44.80 qs47.10 qs49.40 qs51.70 qs54.00 qs56.30 qs58.60 qs60.90	qs44.00 qs46.30 qs48.60 qs50.90 qs53.20 qs55.50 qs57.80 qs60.10 qs62.40	qs44.50 qs46.80 qs49.10 qs51.40 qs53.70 qs56.00 qs58.30 qs60.60 qs62.90	qs46.00 qs48.30 qs50.60 qs52.90 qs55.20 qs57.50 qs59.80 qs62.10 qs64.40	qs46.50 qs48.80 qs51.10 qs53.40 qs55.70 qs58.00 qs60.30 qs62.60 qs64.90	qs48.00 qs50.30 qs52.60 qs54.90 qs57.20 qs59.50 qs61.80 qs64.10 qs66.40	qs48.50 qs50.80 qs53.10 qs55.40 qs57.70 qs60.00 qs62.30 qs64.60 qs66.90	qs50.00 qs52.30 qs54.60 qs56.90 qs59.20 qs61.50 qs63.80 qs66.10 qs68.40	qs50.50 qs52.80 qs55.10 qs57.40 qs59.70 qs62.00 qs64.30 qs66.60 qs68.90	qs52.00 qs54.30 qs56.60 qs58.90 qs61.20 qs63.50 qs65.80 qs68.10 qs70.40	qs52.50 qs54.80 qs57.10 qs59.40 qs61.70 qs64.00 qs66.30 qs68.60 qs70.90	qs54.00 qs56.30 qs58.60 qs60.90 qs63.20 qs65.50 qs67.80 qs70.10 qs72.40	qs54.50 qs56.80 qs59.10 qs61.40 qs63.70 qs66.00 qs68.30 qs70.60 qs72.90	qs56.00 qs58.30 qs60.60 qs62.90 qs65.20 qs67.50 qs69.80 qs72.10 qs74.40	qs56.50 qs58.80 qs61.10 qs63.40 qs65.70 qs68.00 qs70.30 qs72.60 qs74.90	qs58.00 qs60.30 qs62.60 qs64.90 qs67.20 qs69.50 qs71.80 qs74.10 qs76.40	qs58.50 qs60.80 qs63.10 qs65.40 qs67.70 qs70.00 qs72.30 qs74.60 qs76.90	qs60.00 qs62.30 qs64.60 qs66.90 qs69.20 qs71.50 qs73.80 qs76.10 qs78.40	qs60.50 qs62.80 qs65.10 qs67.40 qs69.70 qs72.00 qs74.30 qs76.60 qs78.90	qs62.00 qs64.30 qs66.60 qs68.90 qs71.20 qs73.50 qs75.80 qs78.10 qs80.40	qs62.50 qs64.80 qs67.10 qs69.40 qs71.70 qs74.00 qs76.30 qs78.60 qs80.90	qs64.00 qs66.30 qs68.60 qs70.90 qs73.20 qs75.50 qs77.80 qs80.10 qs82.40	qs64.50 qs66.80 qs69.10 qs71.40 qs73.70 qs76.00 qs78.30 qs80.60 qs82.90	qs66.00 qs68.30 qs70.60 qs72.90 qs75.20 qs77.50 qs79.80 qs82.10 qs84.40	qs66.50 qs68.80 qs71.10 qs73.40 qs75.70 qs78.00 qs80.30 qs82.60 qs84.90	qs68.00 qs70.30 qs72.60 qs74.90 qs77.20 qs79.50 qs81.80 qs84.10 qs86.40	qs68.50 qs70.80 qs73.10 qs75.40 qs77.70 qs80.00 qs82.30 qs84.60 qs86.90	qs70.00 qs72.30 qs74.60 qs76.90 qs79.20 qs81.50 qs83.80 qs86.10 qs88.40	qs70.50 qs72.80 qs75.10 qs77.40 qs79.70 qs82.00 qs84.30 qs86.60 qs88.90	qs72.00 qs74.30 qs76.60 qs78.90 qs81.20 qs83.50 qs85.80 qs88.10 qs90.40	qs72.50 qs74.80 qs77.10 qs79.40 qs81.70 qs84.00 qs86.30 qs88.60 qs90.90	qs74.00 qs76.30 qs78.60 qs80.90 qs83.20 qs85.50 qs87.80 qs90.10 qs92.40	qs74.50 qs76.80 qs79.10 qs81.40 qs83.70 qs86.00 qs88.30 qs90.60 qs92.90	qs76.00 qs78.30 qs80.60 qs82.90 qs85.20 qs87.50 qs89.80 qs92.10 qs94.40	qs76.50 qs78.80 qs81.10 qs83.40 qs85.70 qs88.00 qs90.30 qs92.60 qs94.90	qs78.00 qs80.30 qs82.60 qs84.90 qs87.20 qs89.50 qs91.80 qs94.10 qs96.40	qs78.50 qs8

NOTE—The letter *c* means that a CLINCHER tire is NOT made in this size; *a* that a QUICK-DETACHABLE is not made in this size, and *s* that a STRAIGHT SIDE is not made in this size.

TIRES AND TUBES—Continued[illegible]

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½	
G & J.	Plain	13.25	13.80	17.95	18.85	20.80	27.15	28.00	29.30	30.05	36.20	31.90	33.90	35.60	38.00	38.00	33.90	33.90	33.90	42.25	42.90	44.65	48.20	56.25	51.10		38x5½	
	Non-Skid	15.25	14.50	18.80	19.80	21.85	28.45	28.80	29.30	30.05	36.20	31.90	33.90	35.60	38.00	38.00	33.90	33.90	33.90	42.25	42.90	44.65	48.20	56.25	51.10			
	Stalwart Tread		16.40	21.35	22.45	24.55	30.45	33.50	34.10	35.00	41.65	38.00	39.40	40.80	42.20	42.20	38.00	38.00	38.00	47.15	48.75	50.95	50.05	59.05	53.70			
	Gray Tubes	2.85	3.00	3.75	3.85	4.00	4.30	4.85	5.00	5.15	5.25	5.45	5.65	5.85	6.05	6.15	6.25	5.65	5.65	5.65	6.45	6.60	6.85	7.00	7.55	7.70	8.30	83.50
GENERAL	Red Tubes	3.65	3.75	4.65	4.80	4.90	5.35																9.65	9.90	10.10			
	Plain	16.90		21.05	26.20	29.45	36.20	38.00	39.40	41.65	42.40	45.30	46.30	47.80	49.10	50.45	51.80	45.30	45.30	45.30	52.20	53.65	55.10	56.70	60.45	61.30		
	Non-Skid	18.35	19.55	24.75	26.70	28.70	33.65	38.65	39.40	41.65	42.40	45.30	46.30	47.80	49.10	50.45	51.80	45.30	45.30	45.30	52.20	53.65	55.10	56.70	60.45	61.30		
	Gray Tubes	3.05	3.10	3.65	3.70	3.90	4.05	4.30	4.85	5.00	5.15	5.25	5.45	5.65	5.85	6.05	6.15	6.25	5.65	5.65	5.65	6.45	6.60	6.85	7.00	7.55	8.10	10.20
GILLETTE SAFETY.	Ribbed																											
	5,000-Mile Non-Skid	14.90	13.85	17.95	18.85	20.80	27.15	28.00	29.30	30.05	36.20	31.90	33.90	35.60	38.00	38.00	33.90	33.90	33.90	42.25	42.90	44.65	48.20	56.25	51.10			
	Plain Cord	18.35	19.50	24.75	26.70	28.70	33.65	38.65	39.40	41.65	42.40	45.30	46.30	47.80	49.10	50.45	51.80	45.30	45.30	45.30	52.20	53.65	55.10	56.70	60.45	61.30		
	Gray Tubes	2.75	3.00	3.75	3.85	4.00	4.30	4.85	5.00	5.15	5.25	5.45	5.65	5.85	6.05	6.15	6.25	5.65	5.65	5.65	6.45	6.60	6.85	7.00	7.55	8.10	10.20	
GLOBE.	Hard Service Red Tubes		3.70	4.65	4.80	4.90	5.35																9.65	9.90	10.10			
	Plain	19.90	19.55	24.65	28.85	31.50	36.20	38.00	39.40	41.65	42.40	45.30	46.30	47.80	49.10	50.45	51.80	45.30	45.30	45.30	52.20	53.65	55.10	56.70	60.45	61.30	81.10	
	Good Grip Non-Skid	22.35	22.25	27.35	28.15	30.75	32.45	36.25	40.10	38.10	38.75	40.45	41.20	42.90	43.65	45.35	46.10	47.80	48.55	50.25	50.95	52.65	54.35	56.05	57.75	59.45	79.25	
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.70	5.85	5.85	5.95	6.15	6.35	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.55	8.75	9.90	11.00	
GOODRICH.	Gray Tubes	3.05	3.25	3.50	3.85	4.00	4.20	4.75	5.15	5.15	5.30	5.50	5.75	5.95	6.15	6.35	6.55	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	9.80	10.00	
	Plain	13.80	13.40	17.95	18.35	20.40	23.80	25.30	28.35	26.75	27.25	28.55	29.15	33.30	34.20	37.00	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	74.55	67.30	70.70	
	Safety Tread	14.45	14.10	18.80	18.25	19.30	21.40	24.95	26.50	29.70	28.00	28.65	30.65	35.00	35.90	38.90	39.95	41.30	43.90	43.90	50.20	49.25	55.70	52.15	78.20	70.70	70.70	
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.85	5.00	5.15	5.80	6.00	6.00	6.00	6.15	6.25	6.45	6.65	7.00	7.80	8.60	8.10	9.25	9.45	
GOODYEAR.	Brown Tubes	3.40	3.35	3.80	4.20	4.25	4.30	5.05	5.35	5.50	5.30	5.45	5.55	5.70	6.45	6.60	6.60	6.80	7.00	7.15	7.35	8.35	7.70	9.50	8.95	10.30	10.50	
	S. S. Silvertown Ribbed Tread																										89.65	
	Q. D. Silvertown Ribbed Tread																										89.65	
	S. S. Silvertown Safety Tread																										94.15	
GOODYEAR.	Q. D. Silvertown Safety Tread																										98.40	
	Plain	q14.35	q18.25	q19.60	21.35	q24.20	24.95	q28.35	31.30	q34.05	q38.00	35.70	36.45	q38.10	q40.45	q45.30	q48.50	q51.40	q54.30	q57.20	q60.10	q63.00	q65.90	q68.80	q71.70	q74.60	q77.50	81.10
	Ribbed Tread Cord	q16.80	q21.35	q23.00	24.95	q28.35	31.30	q34.05	36.20	q38.10	q40.45	q42.90	q45.30	q47.75	q50.20	q52.65	q55.10	q57.55	q60.00	q62.45	q64.90	q67.35	q69.80	q72.25	q74.70	q77.15	80.60	
	All-Water Cord	q37.85	q40.45	q43.05	q45.65	q48.25	q50.85	q53.45	q56.05	q58.65	q61.25	q63.85	q66.45	q69.05	q71.65	q74.25	q76.85	q79.45	q82.05	q84.65	q87.25	q89.85	q92.45	q95.05	q97.65	q100.25	103.85	
GORDON.	Unusual Sizes—Plain Tread		3.45	3.65	3.80	4.10	4.35	4.60	4.85	5.10	5.35	5.60	5.85	6.10	6.35	6.60	6.85	7.10	7.35	7.60	7.85	8.10	8.35	8.60	8.85	9.10	9.35	
	All-Water	3.05																										
	Regular Tubes	3.95																										
	Heavy Tourist Tubes	3.95																										
GRYPHON.	Triangle Tread	q18.30	q23.80	q29.30	31.35	q36.40	38.00	q43.05	44.65	q49.70	51.30	q56.35	57.95	q62.95	64.55	q69.60	71.20	q76.25	77.85	q82.90	84.50	q89.55	91.15	q96.20	97.80	q102.85	104.45	108.00
	Non-Skid	15.60	15.00	19.25	20.70	22.85	27.10	28.45	31.70	29.95	30.65	31.90	32.80	34.10	35.40	36.70	38.00	39.30	40.60	41.90	43.20	44.50	45.80	47.10	48.40	49.70	51.00	
	Red Tubes	3.70	3.65	4.00	4.40	4.45	4.90	4.95	5.20	5.60	5.80	5.90	6.15	6.40	6.55	6.85	7.15	7.45	7.75	8.05	8.35	8.65	8.95	9.25	9.55	9.85	10.15	
	Gray Tubes	3.25	3.20	3.70	3.75	4.05	4.15	4.50	4.95	5.20	5.00	5.10	5.25	5.40	5.55	5.70	5.85	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	
HAMILTON.	Cable Tread	14.80	15.85	20.50	21.60	23.55	26.60	28.20	31.50	30.32	31.00	32.30	33.60	34.90	36.20	37.50	38.80	40.10	41.40	42.70	44.00	45.30	46.60	47.90	49.20	50.50	51.80	
	Non-Skid	16.20	17.25	22.00	23.00	24.95	28.00	29.65	33.25	32.30	33.00	34.30	35.60	36.90	38.20	39.50	40.80	42.10	43.40	44.70	46.00	47.30	48.60	49.90	51.20	52.50	53.80	
	Invincible and Perfection Pink Tubes	3.55	3.60	3.80	4.35	4.40	4.55	4.80	5.60	5.70	5.80	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	7.50	7.65	7.80	7.95	8.10	8.25	
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.70	4.75	4.85	5.05	5.25	5.45	5.65	5.85	6.05	6.25	6.45	6.65	6.85	7.05	7.25	7.45	7.65	7.85	8.05	
HANES.	Plain	14.45	15.00	18.85	20.50	22.10	24.80		27.80	28.30	29.95	30.40	31.60	32.15	33.30	33.85	35.00	35.55	36									

TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	34x3	36x3	38x3	30x4	32x4	34x4	35x4	36x4	32x4 1/2	34x4 1/2	35x4 1/2	36x4 1/2	37x4 1/2	35x5	36x5	37x5	37x5 1/2	38x5 1/2
HENDRIE	Plain	16.10	16.65	18.00	19.00	21.30	22.30	24.05	25.05	26.65	28.05	30.15	33.15	34.15	35.00	36.00	37.00	44.35	52.35	53.50	56.75	58.50
	Non-Skid	16.10	16.65	18.00	19.00	21.30	22.30	24.05	25.05	26.65	28.05	30.15	33.15	34.15	35.00	36.00	37.00	44.35	52.35	53.50	56.75	58.50
	California Non-Skid	22.05	23.15	24.40	26.15	28.35	30.15	32.60	34.30	36.15	38.05	40.00	42.55	44.05	45.00	46.00	47.00	55.30	61.90	63.45	67.75	72.20
	Handie Gray Tube	3.45	3.65	4.05	4.25	4.45	4.70	5.00	5.20	5.45	5.70	6.00	6.30	6.55	6.80	7.05	7.30	8.25	9.40	9.65	10.80	11.00
HIGHWAY	California Red Tube	4.35	4.50	4.80	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	11.65	11.75	12.00	12.00	12.75
	Non-Skid	qs14.85	qs14.30	qs18.35	qs21.75	qs25.00	qs28.35	qs31.70	qs35.05	qs38.40	qs41.75	qs45.10	qs48.45	qs51.80	qs55.15	qs58.50	qs61.85	7.75	8.30	8.90	9.20	9.20
	Gray Tubes	3.50	3.60	3.80	4.00	4.20	4.40	4.60	4.80	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	7.00	8.00	8.30	8.80	8.80
	Red Tubes	3.10	3.05	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	4.50	4.65	4.80	4.95	5.10	5.25	5.80	6.80	7.10	7.60	7.60
HOOD	Plain	20.30	20.80	22.35	23.70	25.05	26.40	27.75	29.10	30.45	31.80	33.15	34.50	35.85	37.20	38.55	39.90	58.85	68.85	70.20	71.35	92.50
	Non-Skid	24.30	24.80	26.35	27.70	29.05	30.40	31.75	33.10	34.45	35.80	37.15	38.50	39.85	41.20	42.55	43.90	76.30	77.40	78.00	79.00	100.65
	Ribbed Tread	24.30	24.80	26.35	27.70	29.05	30.40	31.75	33.10	34.45	35.80	37.15	38.50	39.85	41.20	42.55	43.90	76.30	77.40	78.00	79.00	100.65
	Puritan Plain	qs16.75	qs16.75	qs19.00	qs20.35	qs21.70	qs23.05	qs24.40	qs25.75	qs27.10	qs28.45	qs29.80	qs31.15	qs32.50	qs33.85	qs35.20	qs36.55	44.05	53.15	54.00	55.00	95.55
HOWE	Puritan Gripper Non-Skid	qs18.95	qs18.95	qs21.20	qs22.55	qs23.90	qs25.25	qs26.60	qs27.95	qs29.30	qs30.65	qs32.00	qs33.35	qs34.70	qs36.05	qs37.40	qs38.75	63.50	68.50	69.00	70.00	111.75
	Hood Red and Gray Tubes	3.85	4.00	4.30	4.45	4.70	4.85	5.10	5.25	5.50	5.65	5.90	6.05	6.30	6.45	6.70	6.85	9.45	9.90	9.75	11.20	11.75
	Plain	3.40	3.45	3.70	3.85	4.00	4.15	4.40	4.55	4.80	4.95	5.20	5.35	5.60	5.75	6.00	6.15	8.30	8.80	8.60	10.00	11.00
	Ribbed Tread	qs20.85	qs20.85	qs23.10	qs24.45	qs25.80	qs27.15	qs28.50	qs29.85	qs31.20	qs32.55	qs33.90	qs35.25	qs36.60	qs37.95	qs39.30	qs40.65	69.00	72.00	73.55	75.00	121.00
INDIANA	Gray Tubes	2.90	3.00	3.20	3.30	3.50	3.60	3.75	3.85	4.00	4.15	4.30	4.45	4.60	4.75	4.90	5.05	6.90	7.80	8.00	8.10	9.45
	Red Tubes	3.55	3.65	3.85	3.95	4.15	4.25	4.45	4.55	4.75	4.85	5.05	5.15	5.35	5.45	5.65	5.75	8.55	9.70	10.10	10.25	11.00
	Plain	13.50	14.00	15.70	17.00	18.30	19.60	20.90	22.20	23.50	24.80	26.10	27.40	28.70	30.00	31.30	32.60	43.95	53.75	55.00	57.35	63.10
	Button and Traction Non-Skid	2.85	2.90	3.35	3.45	3.60	3.75	3.90	4.05	4.20	4.35	4.50	4.65	4.80	4.95	5.10	5.25	7.10	7.70	7.90	8.15	9.05
KELLY-SPRINGFIELD	Gray Tubes	3.30	3.40	3.80	3.90	4.10	4.20	4.40	4.50	4.70	4.80	5.00	5.10	5.30	5.40	5.60	5.70	8.85	9.85	10.10	10.55	11.85
	Brown Tubes	3.30	3.40	3.80	3.90	4.10	4.20	4.40	4.50	4.70	4.80	5.00	5.10	5.30	5.40	5.60	5.70	8.85	9.85	10.10	10.55	11.85
	Plain	qs21.90	qs20.95	qs23.20	qs24.55	qs25.90	qs27.25	qs28.60	qs29.95	qs31.30	qs32.65	qs34.00	qs35.35	qs36.70	qs38.05	qs39.40	qs40.75	50.75	58.95	60.85	62.15	83.10
	Driving Tread	qs26.55	qs25.00	qs27.30	qs28.65	qs29.95	qs31.30	qs32.65	qs34.00	qs35.35	qs36.70	qs38.05	qs39.40	qs40.75	qs42.10	qs43.45	qs44.80	63.05	72.55	75.55	77.95	102.00
KNIGHT	Kant-Slip Tread	3.65	3.75	4.00	4.10	4.30	4.40	4.60	4.70	4.90	5.00	5.20	5.30	5.50	5.60	5.80	5.90	9.95	10.15	10.55	10.55	12.25
	Red Tubes	3.65	3.75	4.00	4.10	4.30	4.40	4.60	4.70	4.90	5.00	5.20	5.30	5.50	5.60	5.80	5.90	9.95	10.15	10.55	10.55	12.25
	Blackstone Non-Skid	15.85	16.45	18.20	19.50	20.80	22.10	23.40	24.70	26.00	27.30	28.60	29.90	31.20	32.50	33.80	35.10	54.50	62.20	64.75	67.35	88.75
	Knight Plain	22.55	23.15	24.90	26.20	27.50	28.80	30.10	31.40	32.70	34.00	35.30	36.60	37.90	39.20	40.50	41.80	61.00	72.55	75.00	77.45	112.05
KOKOMO	Blackstone Tubes	25.00	25.60	27.35	28.65	30.00	31.35	32.70	34.05	35.40	36.75	38.10	39.45	40.80	42.15	43.50	44.85	72.85	86.90	90.00	92.50	121.05
	Knight Non-Skid	3.10	3.20	3.60	3.70	3.90	4.00	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	9.00	10.15	10.55	10.55	12.25
	Blackstone Tubes	3.70	3.80	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	5.70	5.80	6.00	6.10	10.15	11.60	12.05	12.05	12.25
	Knight Red Tubes	3.70	3.80	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	5.70	5.80	6.00	6.10	10.15	11.60	12.05	12.05	12.25
KREWE	Plain	qs15.25	qs15.85	qs18.10	qs19.45	qs20.80	qs22.15	qs23.50	qs24.85	qs26.20	qs27.55	qs28.90	qs30.25	qs31.60	qs32.95	qs34.30	qs35.65	58.50	67.55	70.00	72.45	93.85
	Gridiron Non-Skid	qs16.00	qs16.65	qs18.90	qs20.25	qs21.60	qs22.95	qs24.30	qs25.65	qs27.00	qs28.35	qs29.70	qs31.05	qs32.40	qs33.75	qs35.10	qs36.45	61.50	72.55	75.00	77.45	102.05
	Standard Red Tubes	2.90	3.05	3.25	3.35	3.55	3.65	3.85	3.95	4.15	4.25	4.45	4.55	4.75	4.85	5.05	5.15	8.10	9.35	9.75	10.35	12.05
	Everlast Red Tubes	3.25	3.35	3.60	3.70	3.90	4.00	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	9.15	10.35	10.75	11.35	13.05
MCCREARY	Plain	15.75	16.45	18.20	19.50	20.80	22.10	23.40	24.70	26.00	27.30	28.60	29.90	31.20	32.50	33.80	35.10	54.50	62.20	64.75	67.35	88.75
	Standard Non-Skid	26.05	26.65	28.40	29.70	31.00	32.30	33.60	34.90	36.20	37.50	38.80	40.10	41.40	42.70	44.00	45.30	72.85	86.90	90.00	92.50	121.05
	Puncture Proof Plain	29.60	30.20	32.00	33.30	34.60	35.90	37.20	38.50	39.80	41.10	42.40	43.70	45.00	46.30	47.60	48.90	77.90	92.00	95.00	97.50	126.05
	Puncture Proof Non-Skid	3.10	3.20	3.60	3.70	3.90	4.00	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	9.00	10.15	10.55	10.55	12.25
MCGRAW	Gray Tubes	3.40	3.50	3.80	3.90	4.10	4.20	4.40	4.50	4.70	4.80	5.00	5.10	5.30	5.40	5.60	5.70	8.70	9.85	10.25	10.75	12.45
	Red Tubes	3.40	3.50	3.80	3.90	4.10	4.20	4.40	4.50	4.70	4.80	5.00	5.10	5.30	5.40	5.60	5.70	8.70	9.85	10.25	10.75	12.45
	Plain	15.50	16.45	18.20	19.50	20.80	22.10	23.40	24.70	26.00	27.30	28.60	29.90	31.20	32.50	33.80	35.10	54.50	62.20	64.75	67.35	88.75
	Non-Skid	17.50	18.15	19.90	21.20	22.50	23.80	25.10	26.40	27.70	29.00	30.30	31.60	32.90	34.20	35.50	36.80	51.20	60.25	62.75	65.25	86.65
MANSFIELD	Gray Tubes	3.05	3.10	3.50	3.60	3.80	3.90	4.10	4.20	4.40	4.50	4.70	4.80	5.00	5.10	5.30	5.40	8.30	9.45	9.85	10.35	12.05
	Red Tubes	3.05	3.10	3.50	3.60	3.80	3.90	4.10	4.20	4.40	4.50	4.70	4.80	5.00	5.10	5.30	5.40	8.30	9.45	9.85	10.35	12.05
	Plain	14.25	14.85	16.60	17.90	19.20	20.50	21.80	23.10	24.40	25.70	27.00	28.30	29.60	30.90	32.20	33.50	48.00	56.75	59.25	61.75	83.15
	Non-Skid	15.90	16.55	18.30	19.60	20.90	22.20	23.50	24.80	26.10	27.40	28.70	30.00	31.30	32.60	33.90	35.20	50.00	58.75	61.25	63.75	85.15
MARATHON	Gray Tubes	3.70	3.80	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	5.70	5.80	6.00	6.10	9.60	10.80	11.20	11.70	13.40
	Red Tubes	3.70	3.80	4.20	4.30	4.50	4.60	4.80	4.90	5.10	5.20	5.40	5.50	5.70	5.80	6.00	6.10	9.60	10.80	11.20	11.70	13.40
	Plain	14.25	14.85	16.60	17.90	19.20	20.50	21.80	23.10	24.40	25.70	27.00	28.30	29.60	30.90	32.20	33.50	48.00	56.75	59.25	61.75	83.15
	Non-Skid	15.90	16.55	18.30	19.60	20.90	22.20	23.50	24.80	26.10	27.40	28.70	30.00	31.30	32.60	33.90	35.20	50.00	58.75	61.25	63.75	85.15

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	32x4½	34x4½	36x4½	38x4½	40x4½	42x4½	44x4½	46x4½	48x4½	50x4½	52x4½	54x4½	56x4½	58x4½	60x4½	62x4½	64x4½	66x4½	68x4½	70x4½	72x4½	74x4½	76x4½	78x4½	80x4½	82x4½	84x4½	86x4½	88x4½	90x4½	92x4½	94x4½	96x4½	98x4½	100x4½																																																																																																																																																																																																																													
MARION	Plain Ribbed Non-Skid Gray Red	qs13.20 qs15.25 qs14.95 qs15.95 2.90	qs14.30 qs16.35 qs15.95 qs16.95 3.00	qs15.30 qs17.35 qs16.95 qs17.95 3.10	qs16.30 qs18.35 qs17.95 qs18.95 3.20	qs17.30 qs19.35 qs18.95 qs19.95 3.30	qs18.30 qs20.35 qs19.95 qs20.95 3.40	qs19.30 qs21.35 qs20.95 qs21.95 3.50	qs20.30 qs22.35 qs21.95 qs22.95 3.60	qs21.30 qs23.35 qs22.95 qs23.95 3.70	qs22.30 qs24.35 qs23.95 qs24.95 3.80	qs23.30 qs25.35 qs24.95 qs25.95 3.90	qs24.30 qs26.35 qs25.95 qs26.95 4.00	qs25.30 qs27.35 qs26.95 qs27.95 4.10	qs26.30 qs28.35 qs27.95 qs28.95 4.20	qs27.30 qs29.35 qs28.95 qs29.95 4.30	qs28.30 qs30.35 qs29.95 qs30.95 4.40	qs29.30 qs31.35 qs30.95 qs31.95 4.50	qs30.30 qs32.35 qs31.95 qs32.95 4.60	qs31.30 qs33.35 qs32.95 qs33.95 4.70	qs32.30 qs34.35 qs33.95 qs34.95 4.80	qs33.30 qs35.35 qs34.95 qs35.95 4.90	qs34.30 qs36.35 qs35.95 qs36.95 5.00	qs35.30 qs37.35 qs36.95 qs37.95 5.10	qs36.30 qs38.35 qs37.95 qs38.95 5.20	qs37.30 qs39.35 qs38.95 qs39.95 5.30	qs38.30 qs40.35 qs39.95 qs40.95 5.40	qs39.30 qs41.35 qs40.95 qs41.95 5.50	qs40.30 qs42.35 qs41.95 qs42.95 5.60	qs41.30 qs43.35 qs42.95 qs43.95 5.70	qs42.30 qs44.35 qs43.95 qs44.95 5.80	qs43.30 qs45.35 qs44.95 qs45.95 5.90	qs44.30 qs46.35 qs45.95 qs46.95 6.00	qs45.30 qs47.35 qs46.95 qs47.95 6.10	qs46.30 qs48.35 qs47.95 qs48.95 6.20	qs47.30 qs49.35 qs48.95 qs49.95 6.30	qs48.30 qs50.35 qs49.95 qs50.95 6.40	qs49.30 qs51.35 qs50.95 qs51.95 6.50	qs50.30 qs52.35 qs51.95 qs52.95 6.60	qs51.30 qs53.35 qs52.95 qs53.95 6.70	qs52.30 qs54.35 qs53.95 qs54.95 6.80	qs53.30 qs55.35 qs54.95 qs55.95 6.90	qs54.30 qs56.35 qs55.95 qs56.95 7.00	qs55.30 qs57.35 qs56.95 qs57.95 7.10	qs56.30 qs58.35 qs57.95 qs58.95 7.20	qs57.30 qs59.35 qs58.95 qs59.95 7.30	qs58.30 qs60.35 qs59.95 qs60.95 7.40	qs59.30 qs61.35 qs60.95 qs61.95 7.50	qs60.30 qs62.35 qs61.95 qs62.95 7.60	qs61.30 qs63.35 qs62.95 qs63.95 7.70	qs62.30 qs64.35 qs63.95 qs64.95 7.80	qs63.30 qs65.35 qs64.95 qs65.95 7.90	qs64.30 qs66.35 qs65.95 qs66.95 8.00	qs65.30 qs67.35 qs66.95 qs67.95 8.10	qs66.30 qs68.35 qs67.95 qs68.95 8.20	qs67.30 qs69.35 qs68.95 qs69.95 8.30	qs68.30 qs70.35 qs69.95 qs70.95 8.40	qs69.30 qs71.35 qs70.95 qs71.95 8.50	qs70.30 qs72.35 qs71.95 qs72.95 8.60	qs71.30 qs73.35 qs72.95 qs73.95 8.70	qs72.30 qs74.35 qs73.95 qs74.95 8.80	qs73.30 qs75.35 qs74.95 qs75.95 8.90	qs74.30 qs76.35 qs75.95 qs76.95 9.00	qs75.30 qs77.35 qs76.95 qs77.95 9.10	qs76.30 qs78.35 qs77.95 qs78.95 9.20	qs77.30 qs79.35 qs78.95 qs79.95 9.30	qs78.30 qs80.35 qs79.95 qs80.95 9.40	qs79.30 qs81.35 qs80.95 qs81.95 9.50	qs80.30 qs82.35 qs81.95 qs82.95 9.60	qs81.30 qs83.35 qs82.95 qs83.95 9.70	qs82.30 qs84.35 qs83.95 qs84.95 9.80	qs83.30 qs85.35 qs84.95 qs85.95 9.90	qs84.30 qs86.35 qs85.95 qs86.95 10.00	qs85.30 qs87.35 qs86.95 qs87.95 10.10	qs86.30 qs88.35 qs87.95 qs88.95 10.20	qs87.30 qs89.35 qs88.95 qs89.95 10.30	qs88.30 qs90.35 qs89.95 qs90.95 10.40	qs89.30 qs91.35 qs90.95 qs91.95 10.50	qs90.30 qs92.35 qs91.95 qs92.95 10.60	qs91.30 qs93.35 qs92.95 qs93.95 10.70	qs92.30 qs94.35 qs93.95 qs94.95 10.80	qs93.30 qs95.35 qs94.95 qs95.95 10.90	qs94.30 qs96.35 qs95.95 qs96.95 11.00	qs95.30 qs97.35 qs96.95 qs97.95 11.10	qs96.30 qs98.35 qs97.95 qs98.95 11.20	qs97.30 qs99.35 qs98.95 qs99.95 11.30	qs98.30 qs100.35 qs99.95 qs100.95 11.40	qs99.30 qs101.35 qs100.95 qs101.95 11.50	qs100.30 qs102.35 qs101.95 qs102.95 11.60	qs101.30 qs103.35 qs102.95 qs103.95 11.70	qs102.30 qs104.35 qs103.95 qs104.95 11.80	qs103.30 qs105.35 qs104.95 qs105.95 11.90	qs104.30 qs106.35 qs105.95 qs106.95 12.00	qs105.30 qs107.35 qs106.95 qs107.95 12.10	qs106.30 qs108.35 qs107.95 qs108.95 12.20	qs107.30 qs109.35 qs108.95 qs109.95 12.30	qs108.30 qs110.35 qs109.95 qs110.95 12.40	qs109.30 qs111.35 qs110.95 qs111.95 12.50	qs110.30 qs112.35 qs111.95 qs112.95 12.60	qs111.30 qs113.35 qs112.95 qs113.95 12.70	qs112.30 qs114.35 qs113.95 qs114.95 12.80	qs113.30 qs115.35 qs114.95 qs115.95 12.90	qs114.30 qs116.35 qs115.95 qs116.95 13.00	qs115.30 qs117.35 qs116.95 qs117.95 13.10	qs116.30 qs118.35 qs117.95 qs118.95 13.20	qs117.30 qs119.35 qs118.95 qs119.95 13.30	qs118.30 qs120.35 qs119.95 qs120.95 13.40	qs119.30 qs121.35 qs120.95 qs121.95 13.50	qs120.30 qs122.35 qs121.95 qs122.95 13.60	qs121.30 qs123.35 qs122.95 qs123.95 13.70	qs122.30 qs124.35 qs123.95 qs124.95 13.80	qs123.30 qs125.35 qs124.95 qs125.95 13.90	qs124.30 qs126.35 qs125.95 qs126.95 14.00	qs125.30 qs127.35 qs126.95 qs127.95 14.10	qs126.30 qs128.35 qs127.95 qs128.95 14.20	qs127.30 qs129.35 qs128.95 qs129.95 14.30	qs128.30 qs130.35 qs129.95 qs130.95 14.40	qs129.30 qs131.35 qs130.95 qs131.95 14.50	qs130.30 qs132.35 qs131.95 qs132.95 14.60	qs131.30 qs133.35 qs132.95 qs133.95 14.70	qs132.30 qs134.35 qs133.95 qs134.95 14.80	qs133.30 qs135.35 qs134.95 qs135.95 14.90	qs134.30 qs136.35 qs135.95 qs136.95 15.00	qs135.30 qs137.35 qs136.95 qs137.95 15.10	qs136.30 qs138.35 qs137.95 qs138.95 15.20	qs137.30 qs139.35 qs138.95 qs139.95 15.30	qs138.30 qs140.35 qs139.95 qs140.95 15.40	qs139.30 qs141.35 qs140.95 qs141.95 15.50	qs140.30 qs142.35 qs141.95 qs142.95 15.60	qs141.30 qs143.35 qs142.95 qs143.95 15.70	qs142.30 qs144.35 qs143.95 qs144.95 15.80	qs143.30 qs145.35 qs144.95 qs145.95 15.90	qs144.30 qs146.35 qs145.95 qs146.95 16.00	qs145.30 qs147.35 qs146.95 qs147.95 16.10	qs146.30 qs148.35 qs147.95 qs148.95 16.20	qs147.30 qs149.35 qs148.95 qs149.95 16.30	qs148.30 qs150.35 qs149.95 qs150.95 16.40	qs149.30 qs151.35 qs150.95 qs151.95 16.50	qs150.30 qs152.35 qs151.95 qs152.95 16.60	qs151.30 qs153.35 qs152.95 qs153.95 16.70	qs152.30 qs154.35 qs153.95 qs154.95 16.80	qs153.30 qs155.35 qs154.95 qs155.95 16.90	qs154.30 qs156.35 qs155.95 qs156.95 17.00	qs155.30 qs157.35 qs156.95 qs157.95 17.10	qs156.30 qs158.35 qs157.95 qs158.95 17.20	qs157.30 qs159.35 qs158.95 qs159.95 17.30	qs158.30 qs160.35 qs159.95 qs160.95 17.40	qs159.30 qs161.35 qs160.95 qs161.95 17.50	qs160.30 qs162.35 qs161.95 qs162.95 17.60	qs161.30 qs163.35 qs162.95 qs163.95 17.70	qs162.30 qs164.35 qs163.95 qs164.95 17.80	qs163.30 qs165.35 qs164.95 qs165.95 17.90	qs164.30 qs166.35 qs165.95 qs166.95 18.00	qs165.30 qs167.35 qs166.95 qs167.95 18.10	qs166.30 qs168.35 qs167.95 qs168.95 18.20	qs167.30 qs169.35 qs168.95 qs169.95 18.30	qs168.30 qs170.35 qs169.95 qs170.95 18.40	qs169.30 qs171.35 qs170.95 qs171.95 18.50	qs170.30 qs172.35 qs171.95 qs172.95 18.60	qs171.30 qs173.35 qs172.95 qs173.95 18.70	qs172.30 qs174.35 qs173.95 qs174.95 18.80	qs173.30 qs175.35 qs174.95 qs175.95 18.90	qs174.30 qs176.35 qs175.95 qs176.95 19.00	qs175.30 qs177.35 qs176.95 qs177.95 19.10	qs176.30 qs178.35 qs177.95 qs178.95 19.20	qs177.30 qs179.35 qs178.95 qs179.95 19.30	qs178.30 qs180.35 qs179.95 qs180.95 19.40	qs179.30 qs181.35 qs180.95 qs181.95 19.50	qs180.30 qs182.35 qs181.95 qs182.95 19.60	qs181.30 qs183.35 qs182.95 qs183.95 19.70	qs182.30 qs184.35 qs183.95 qs184.95 19.80	qs183.30 qs185.35 qs184.95 qs185.95 19.90	qs184.30 qs186.35 qs185.95 qs186.95 20.00	qs185.30 qs187.35 qs186.95 qs187.95 20.10	qs186.30 qs188.35 qs187.95 qs188.95 20.20	qs187.30 qs189.35 qs188.95 qs189.95 20.30	qs188.30 qs190.35 qs189.95 qs190.95 20.40	qs189.30 qs191.35 qs190.95 qs191.95 20.50	qs190.30 qs192.35 qs191.95 qs192.95 20.60	qs191.30 qs193.35 qs192.95 qs193.95 20.70	qs192.30 qs194.35 qs193.95 qs194.95 20.80	qs193.30 qs195.35 qs194.95 qs195.95 20.90	qs194.30 qs196.35 qs195.95 qs196.95 21.00	qs195.30 qs197.35 qs196.95 qs197.95 21.10	qs196.30 qs198.35 qs197.95 qs198.95 21.20	qs197.30 qs199.35 qs198.95 qs199.95 21.30	qs198.30 qs200.35 qs199.95 qs200.95 21.40	qs199.30 qs201.35 qs200.95 qs201.95 21.50	qs200.30 qs202.35 qs201.95 qs202.95 21.60	qs201.30 qs203.35 qs202.95 qs203.95 21.70	qs202.30 qs204.35 qs203.95 qs204.95 21.80	qs203.30 qs205.35 qs204.95 qs205.95 21.90	qs204.30 qs206.35 qs205.95 qs206.95 22.00	qs205.30 qs207.35 qs206.95 qs207.95 22.10	qs206.30 qs208.35 qs207.95 qs208.95 22.20	qs207.30 qs209.35 qs208.95 qs209.95 22.30	qs208.30 qs210.35 qs209.95 qs210.95 22.40	qs209.30 qs211.35 qs210.95 qs211.95 22.50	qs210.30 qs212.35 qs211.95 qs212.95 22.60	qs211.30 qs213.35 qs212.95 qs213.95 22.70	qs212.30 qs214.35 qs213.95 qs214.95 22.80	qs213.30 qs215.35 qs214.95 qs215.95 22.90	qs214.30 qs216.35 qs215.95 qs216.95 23.00	qs215.30 qs217.35 qs216.95 qs217.95 23.10	qs216.30 qs218.35 qs217.95 qs218.95 23.20	qs217.30 qs219.35 qs218.95 qs219.95 23.30	qs218.30 qs220.35 qs219.95 qs220.95 23.40	qs219.30 qs221.35 qs220.95 qs221.95 23.50	qs220.30 qs222.35 qs221.95 qs222.95 23.60	qs221.30 qs223.35 qs222.95 qs223.95 23.70	qs222.30 qs224.35 qs223.95 qs224.95 23.80	qs223.30 qs225.35 qs224.95 qs225.95 23.90	qs224.30 qs226.35 qs225.95 qs226.95 24.00	qs225.30 qs227.35 qs226.95 qs227.95 24.10	qs226.30 qs228.35 qs227.95 qs228.95 24.20	qs227.30 qs229.35 qs228.95 qs229.95 24.30	qs228.30 qs230.35 qs229.95 qs230.95 24.40	qs229.30 qs231.35 qs230.95 qs231.95 24.50	qs230.30 qs232.35 qs231.95 qs232.95 24.60	qs231.30 qs233.35 qs232.95 qs233.95 24.70	qs232.30 qs234.35 qs233.95 qs234.95 24.80	qs233.30 qs235.35 qs234.95 qs235.95 24.90	qs234.30 qs236.35 qs235.95 qs236.95 25.00	qs235.30 qs237.35 qs236.95 qs237.95 25.10	qs236.30 qs238.35 qs237.95 qs238.95 25.20	qs237.30 qs239.35 qs238.95 qs239.95 25.30	qs238.30 qs240.35 qs239.95 qs240.95 25.40	qs239.30 qs241.35 qs240.95 qs241.95 25.50	qs240.30 qs242.35 qs241.95 qs242.95 25.60	qs241.30 qs243.35 qs242.95 qs243.95 25.70	qs242.30 qs244.35 qs243.95 qs244.95 25.80	qs243.30 qs245.35 qs244.95 qs245.95 25.90	qs244.30 qs246.35 qs245.95 qs246.95 26.00	qs245.30 qs247.35 qs246.95 qs247.95 26.10	qs246.30 qs248.35 qs247.95 qs248.95 26.20	qs247.30 qs249.35 qs248.95 qs249.95 26.30	qs248.30 qs250.35 qs249.95 qs250.95 26.40	qs249.30 qs251.35 qs250.95 qs251.95 26.50	qs250.30 qs252.35 qs251.95 qs252.95 26.60	qs251.30 qs253.35 qs252.95 qs253.95 26.70	qs252.30 qs254.35 qs253.95 qs254.95 26.80	qs253.30 qs255.35 qs254.95 qs255.95 26.90	qs254.30 qs256.35 qs255.95 qs256.95 27.00	qs255.30 qs257.35 qs256.95 qs257.95 27.10	qs256.30 qs258.35 qs257.95 qs258.95 27.20	qs257.30 qs259.35 qs258.95 qs259.95 27.30	qs258.30 qs260.35 qs259.95 qs260.95 27.40	qs259.30 qs261.35 qs260.95 qs261.95 27.50	qs260.30 qs262.35 qs261.95 qs262.95 27.60	qs261.30 qs263.35 qs262.95 qs263.95 27.70	qs262.30 qs264.35 qs263.95 qs264.95 27.80	qs263.30 qs265.35 qs264.95 qs265.95 27.90	qs264.30 qs266.35 qs265.95 qs266.95 28.00	qs265.30 qs267.35 qs266.95 qs267.95 28.10	qs266.30 qs268.35 qs267.95 qs268.95 28.20	qs267.30 qs269.35 qs268.95 qs269.95 28.30	qs268.30 qs270.35 qs269.95 qs270.95 28.40	qs269.30 qs271.35 qs270.95 qs271.95 28.50	qs270.30 qs272.35 qs271.95 qs272.95 28.60	qs271.30 qs273.35 qs272.95 qs273.95 28.70	qs272.30 qs274.35 qs273.95 qs274.95 28.80	qs273.30 qs275.35 qs274.95 qs275.95 28.90	qs274.30 qs276.35 qs275.95 qs276.95 29.00	qs275.30 qs277.35 qs276.95 qs277.95 29.10	qs276.30 qs278.35 qs277.95 qs278.95 29.20	qs277.30 qs279.35 qs278.95 qs279.

TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	34x3	36x3	38x3	40x3	42x3	44x3	46x3	48x3	50x3	52x3	54x3	56x3	58x3	60x3	62x3	64x3	66x3	68x3	70x3	72x3	74x3	76x3	78x3	80x3	82x3	84x3	86x3	88x3	90x3	92x3	94x3	96x3	98x3	100x3																																																																																																																																																																																																																																																																																																																																						
RACINE	Plain Country Road Ribbed Cord Non-Skid Gray Tubes Red Tubes	14.20 16.55 2.85 3.40	15.20 17.75 3.00 3.40	17.70 20.85 3.25 3.95	19.75 22.60 3.50 4.30	21.75 25.50 3.80 4.40	23.50 28.00 4.15 4.60	25.25 30.00 4.45 4.85	27.00 32.00 4.75 5.10	28.75 34.00 5.00 5.35	30.50 36.00 5.30 5.65	32.25 38.00 5.55 5.90	34.00 40.00 5.80 6.15	35.75 42.00 6.05 6.40	37.50 44.00 6.30 6.65	39.25 46.00 6.55 6.90	41.00 48.00 6.80 7.15	42.75 50.00 7.05 7.40	44.50 52.00 7.30 7.65	46.25 54.00 7.55 7.90	48.00 56.00 7.80 8.15	49.75 58.00 8.05 8.40	51.50 60.00 8.30 8.65	53.25 62.00 8.55 8.90	55.00 64.00 8.80 9.15	56.75 66.00 9.05 9.40	58.50 68.00 9.30 9.65	60.25 70.00 9.55 9.90	62.00 72.00 9.80 10.15	63.75 74.00 10.05 10.40	65.50 76.00 10.30 10.65	67.25 78.00 10.55 10.90	69.00 80.00 10.80 11.15	70.75 82.00 11.05 11.40	72.50 84.00 11.30 11.65	74.25 86.00 11.55 11.90	76.00 88.00 11.80 12.15	77.75 90.00 12.05 12.40	79.50 92.00 12.30 12.65	81.25 94.00 12.55 12.90	83.00 96.00 12.80 13.15	84.75 98.00 13.05 13.40	86.50 100.00 13.30 13.65	88.25 102.00 13.55 13.90	90.00 104.00 13.80 14.15	91.75 106.00 14.05 14.40	93.50 108.00 14.30 14.65	95.25 110.00 14.55 14.90	97.00 112.00 14.80 15.15	98.75 114.00 15.05 15.40	100.50 116.00 15.30 15.65	102.25 118.00 15.55 15.90	104.00 120.00 15.80 16.15	105.75 122.00 16.05 16.40	107.50 124.00 16.30 16.65	109.25 126.00 16.55 16.90	111.00 128.00 16.80 17.15	112.75 130.00 17.05 17.40	114.50 132.00 17.30 17.65	116.25 134.00 17.55 17.90	118.00 136.00 17.80 18.15	119.75 138.00 18.05 18.40	121.50 140.00 18.30 18.65	123.25 142.00 18.55 18.90	125.00 144.00 18.80 19.15	126.75 146.00 19.05 19.40	128.50 148.00 19.30 19.65	130.25 150.00 19.55 19.90	132.00 152.00 19.80 20.15	133.75 154.00 20.05 20.40	135.50 156.00 20.30 20.65	137.25 158.00 20.55 20.90	139.00 160.00 20.80 21.15	140.75 162.00 21.05 21.40	142.50 164.00 21.30 21.65	144.25 166.00 21.55 21.90	146.00 168.00 21.80 22.15	147.75 170.00 22.05 22.40	149.50 172.00 22.30 22.65	151.25 174.00 22.55 22.90	153.00 176.00 22.80 23.15	154.75 178.00 23.05 23.40	156.50 180.00 23.30 23.65	158.25 182.00 23.55 23.90	160.00 184.00 23.80 24.15	161.75 186.00 24.05 24.40	163.50 188.00 24.30 24.65	165.25 190.00 24.55 24.90	167.00 192.00 24.80 25.15	168.75 194.00 25.05 25.40	170.50 196.00 25.30 25.65	172.25 198.00 25.55 25.90	174.00 200.00 25.80 26.15	175.75 202.00 26.05 26.40	177.50 204.00 26.30 26.65	179.25 206.00 26.55 26.90	181.00 208.00 26.80 27.15	182.75 210.00 27.05 27.40	184.50 212.00 27.30 27.65	186.25 214.00 27.55 27.90	188.00 216.00 27.80 28.15	189.75 218.00 28.05 28.40	191.50 220.00 28.30 28.65	193.25 222.00 28.55 28.90	195.00 224.00 28.80 29.15	196.75 226.00 29.05 29.40	198.50 228.00 29.30 29.65	200.25 230.00 29.55 29.90	202.00 232.00 29.80 30.15	203.75 234.00 30.05 30.40	205.50 236.00 30.30 30.65	207.25 238.00 30.55 30.90	209.00 240.00 30.80 31.15	210.75 242.00 31.05 31.40	212.50 244.00 31.30 31.65	214.25 246.00 31.55 31.90	216.00 248.00 31.80 32.15	217.75 250.00 32.05 32.40	219.50 252.00 32.30 32.65	221.25 254.00 32.55 32.90	223.00 256.00 32.80 33.15	224.75 258.00 33.05 33.40	226.50 260.00 33.30 33.65	228.25 262.00 33.55 33.90	230.00 264.00 33.80 34.15	231.75 266.00 34.05 34.40	233.50 268.00 34.30 34.65	235.25 270.00 34.55 34.90	237.00 272.00 34.80 35.15	238.75 274.00 35.05 35.40	240.50 276.00 35.30 35.65	242.25 278.00 35.55 35.90	244.00 280.00 35.80 36.15	245.75 282.00 36.05 36.40	247.50 284.00 36.30 36.65	249.25 286.00 36.55 36.90	251.00 288.00 36.80 37.15	252.75 290.00 37.05 37.40	254.50 292.00 37.30 37.65	256.25 294.00 37.55 37.90	258.00 296.00 37.80 38.15	259.75 298.00 38.05 38.40	261.50 300.00 38.30 38.65	263.25 302.00 38.55 38.90	265.00 304.00 38.80 39.15	266.75 306.00 39.05 39.40	268.50 308.00 39.30 39.65	270.25 310.00 39.55 39.90	272.00 312.00 39.80 40.15	273.75 314.00 40.05 40.40	275.50 316.00 40.30 40.65	277.25 318.00 40.55 40.90	279.00 320.00 40.80 41.15	280.75 322.00 41.05 41.40	282.50 324.00 41.30 41.65	284.25 326.00 41.55 41.90	286.00 328.00 41.80 42.15	287.75 330.00 42.05 42.40	289.50 332.00 42.30 42.65	291.25 334.00 42.55 42.90	293.00 336.00 42.80 43.15	294.75 338.00 43.05 43.40	296.50 340.00 43.30 43.65	298.25 342.00 43.55 43.90	300.00 344.00 43.80 44.15	301.75 346.00 44.05 44.40	303.50 348.00 44.30 44.65	305.25 350.00 44.55 44.90	307.00 352.00 44.80 45.15	308.75 354.00 45.05 45.40	310.50 356.00 45.30 45.65	312.25 358.00 45.55 45.90	314.00 360.00 45.80 46.15	315.75 362.00 46.05 46.40	317.50 364.00 46.30 46.65	319.25 366.00 46.55 46.90	321.00 368.00 46.80 47.15	322.75 370.00 47.05 47.40	324.50 372.00 47.30 47.65	326.25 374.00 47.55 47.90	328.00 376.00 47.80 48.15	329.75 378.00 48.05 48.40	331.50 380.00 48.30 48.65	333.25 382.00 48.55 48.90	335.00 384.00 48.80 49.15	336.75 386.00 49.05 49.40	338.50 388.00 49.30 49.65	340.25 390.00 49.55 49.90	342.00 392.00 49.80 50.15	343.75 394.00 50.05 50.40	345.50 396.00 50.30 50.65	347.25 398.00 50.55 50.90	349.00 400.00 50.80 51.15	350.75 402.00 51.05 51.40	352.50 404.00 51.30 51.65	354.25 406.00 51.55 51.90	356.00 408.00 51.80 52.15	357.75 410.00 52.05 52.40	359.50 412.00 52.30 52.65	361.25 414.00 52.55 52.90	363.00 416.00 52.80 53.15	364.75 418.00 53.05 53.40	366.50 420.00 53.30 53.65	368.25 422.00 53.55 53.90	370.00 424.00 53.80 54.15	371.75 426.00 54.05 54.40	373.50 428.00 54.30 54.65	375.25 430.00 54.55 54.90	377.00 432.00 54.80 55.15	378.75 434.00 55.05 55.40	380.50 436.00 55.30 55.65	382.25 438.00 55.55 55.90	384.00 440.00 55.80 56.15	385.75 442.00 56.05 56.40	387.50 444.00 56.30 56.65	389.25 446.00 56.55 56.90	391.00 448.00 56.80 57.15	392.75 450.00 57.05 57.40	394.50 452.00 57.30 57.65	396.25 454.00 57.55 57.90	398.00 456.00 57.80 58.15	399.75 458.00 58.05 58.40	401.50 460.00 58.30 58.65	403.25 462.00 58.55 58.90	405.00 464.00 58.80 59.15	406.75 466.00 59.05 59.40	408.50 468.00 59.30 59.65	410.25 470.00 59.55 59.90	412.00 472.00 59.80 60.15	413.75 474.00 60.05 60.40	415.50 476.00 60.30 60.65	417.25 478.00 60.55 60.90	419.00 480.00 60.80 61.15	420.75 482.00 61.05 61.40	422.50 484.00 61.30 61.65	424.25 486.00 61.55 61.90	426.00 488.00 61.80 62.15	427.75 490.00 62.05 62.40	429.50 492.00 62.30 62.65	431.25 494.00 62.55 62.90	433.00 496.00 62.80 63.15	434.75 498.00 63.05 63.40	436.50 500.00 63.30 63.65	438.25 502.00 63.55 63.90	440.00 504.00 63.80 64.15	441.75 506.00 64.05 64.40	443.50 508.00 64.30 64.65	445.25 510.00 64.55 64.90	447.00 512.00 64.80 65.15	448.75 514.00 65.05 65.40	450.50 516.00 65.30 65.65	452.25 518.00 65.55 65.90	454.00 520.00 65.80 66.15	455.75 522.00 66.05 66.40	457.50 524.00 66.30 66.65	459.25 526.00 66.55 66.90	461.00 528.00 66.80 67.15	462.75 530.00 67.05 67.40	464.50 532.00 67.30 67.65	466.25 534.00 67.55 67.90	468.00 536.00 67.80 68.15	469.75 538.00 68.05 68.40	471.50 540.00 68.30 68.65	473.25 542.00 68.55 68.90	475.00 544.00 68.80 69.15	476.75 546.00 69.05 69.40	478.50 548.00 69.30 69.65	480.25 550.00 69.55 69.90	482.00 552.00 69.80 70.15	483.75 554.00 70.05 70.40	485.50 556.00 70.30 70.65	487.25 558.00 70.55 70.90	489.00 560.00 70.80 71.15	490.75 562.00 71.05 71.40	492.50 564.00 71.30 71.65	494.25 566.00 71.55 71.90	496.00 568.00 71.80 72.15	497.75 570.00 72.05 72.40	499.50 572.00 72.30 72.65	501.25 574.00 72.55 72.90	503.00 576.00 72.80 73.15	504.75 578.00 73.05 73.40	506.50 580.00 73.30 73.65	508.25 582.00 73.55 73.90	510.00 584.00 73.80 74.15	511.75 586.00 74.05 74.40	513.50 588.00 74.30 74.65	515.25 590.00 74.55 74.90	517.00 592.00 74.80 75.15	518.75 594.00 75.05 75.40	520.50 596.00 75.30 75.65	522.25 598.00 75.55 75.90	524.00 600.00 75.80 76.15	525.75 602.00 76.05 76.40	527.50 604.00 76.30 76.65	529.25 606.00 76.55 76.90	531.00 608.00 76.80 77.15	532.75 610.00 77.05 77.40	534.50 612.00 77.30 77.65	536.25 614.00 77.55 77.90	538.00 616.00 77.80 78.15	539.75 618.00 78.05 78.40	541.50 620.00 78.30 78.65	543.25 622.00 78.55 78.90	545.00 624.00 78.80 79.15	546.75 626.00 79.05 79.40	548.50 628.00 79.30 79.65	550.25 630.00 79.55 79.90	552.00 632.00 79.80 80.15	553.75 634.00 80.05 80.40	555.50 636.00 80.30 80.65	557.25 638.00 80.55 80.90	559.00 640.00 80.80 81.15	560.75 642.00 81.05 81.40	562.50 644.00 81.30 81.65	564.25 646.00 81.55 81.90	566.00 648.00 81.80 82.15	567.75 650.00 82.05 82.40	569.50 652.00 82.30 82.65	571.25 654.00 82.55 82.90	573.00 656.00 82.80 83.15	574.75 658.00 83.05 83.40	576.50 660.00 83.30 83.65	578.25 662.00 83.55 83.90	580.00 664.00 83.80 84.15	581.75 666.00 84.05 84.40	583.50 668.00 84.30 84.65	585.25 670.00 84.55 84.90	587.00 672.00 84.80 85.15	588.75 674.00 85.05 85.40	590.50 676.00 85.30 85.65	592.25 678.00 85.55 85.90	594.00 680.00 85.80 86.15	595.75 682.00 86.05 86.40	597.50 684.00 86.30 86.65	599.25 686.00 86.55 86.90	601.00 688.00 86.80 87.15	602.75 690.00 87.05 87.40	604.50 692.00 87.30 87.65	606.25 694.00 87.55 87.90	608.00 696.00 87.80 88.15	609.75 698.00 88.05 88.40	611.50 700.00 88.30 88.65	613.25 702.00 88.55 88.90	615.00 704.00 88.80 89.15	616.75 706.00 89.05 89.40	618.50 708.00 89.30 89.65	620.25 710.00 89.55 89.90	622.00 712.00 89.80 90.15	623.75 714.00 90.05 90.40	625.50 716.00 90.30 90.65	627.25 718.00 90.55 90.90	629.00 720.00 90.80 91.15	630.75 722.00 91.05 91.40	632.50 724.00 91.30 91.65	634.25 726.00 91.55 91.90	636.00 728.00 91.80 92.15	637.75 730.00 92.05 92.40	639.50 732.00 92.30 92.65	641.25 734.00 92.55 92.90	643.00 736.00 92.80 93.15	644.75 738.00 93.05 93.40	646.50 740.00 93.30 93.65	648.25 742.00 93

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	38x5½
TYRIAN	Plain	q14.30	s16.00	cs17.60	e20.00	q21.15	e23.05	e26.10	cs29.00	q30.60	e31.35	e32.90	e33.65	e35.15	e37.00	e38.45	cs35.70	cs38.45	e41.70	e46.70	e47.35	e49.30	e52.00	e52.85	e55.25	e57.80
	Holdite Non-Skid	q15.60	s17.30	cs18.85	e22.10	q23.25	e25.10	e28.15	cs31.80	q33.30	e34.05	e35.65	e36.30	e37.90	e39.40	e40.95	e43.70	e48.70	e50.10	e51.70	e53.85	e56.75	e59.60	e62.25	e65.05	e67.90
	Extra Heavy Red	q15.60	s17.30	cs18.85	e22.10	q23.25	e25.10	e28.15	cs31.80	q33.30	e34.05	e35.65	e36.30	e37.90	e39.40	e40.95	e43.70	e48.70	e50.10	e51.70	e53.85	e56.75	e59.60	e62.25	e65.05	e67.90
UNITED STATES	Plain	13.25	13.80	16.85	17.95	18.85	20.80	27.15	33.75	27.45	28.00	29.30	30.05	36.20	38.00	39.15	43.80	46.00	47.15	48.75	50.95	53.70	56.25	58.70	61.25	63.80
	Urethane Non-Skid	15.25	14.50	17.70	18.80	19.80	21.85	28.45	35.60	41.10	33.50	34.10	35.90	36.65	44.15	46.00	47.15	48.75	50.95	53.70	56.25	58.70	61.25	63.80	66.35	68.90
	Chain Non-Skid	16.50	16.40	19.95	21.35	22.45	24.55	31.90	40.00	49.20	40.80	42.85	43.65	49.85	58.00	68.20	55.20	57.10	59.65	60.50	63.05	65.50	68.00	70.50	73.00	75.50
VICTOR	Plain	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	40.00	40.80	42.85	43.65	49.85	58.00	68.20	55.20	57.10	59.65	60.50	63.05	65.50	68.00	70.50	73.00	75.50
	Nobby Non-Skid	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	40.00	40.80	42.85	43.65	49.85	58.00	68.20	55.20	57.10	59.65	60.50	63.05	65.50	68.00	70.50	73.00	75.50
	Royal Cord Non-Skid	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	40.00	40.80	42.85	43.65	49.85	58.00	68.20	55.20	57.10	59.65	60.50	63.05	65.50	68.00	70.50	73.00	75.50
VITALIC	Gray Tubes	2.85	3.00	3.15	3.75	3.85	4.00	4.30	4.60	4.70	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	9.40	9.40
	Red Tubes	3.65	3.75	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.15	6.25	6.55	6.70	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	11.25
	Non-Skid	17.10	18.05	22.25	22.25	25.55	25.55	28.55	34.55	36.70	37.30	38.90	39.30	43.55	44.00	45.10	48.00	48.00	48.00	48.00	48.00	50.70	50.70	60.60	60.60	60.60
VULCAN	Plain	18.90	19.90	23.45	23.45	28.55	28.55	33.55	38.55	39.10	41.10	43.55	44.00	53.10	53.10	53.10	53.10	53.10	53.10	53.10	53.10	57.75	57.75	61.45	61.45	61.45
	Ribbed	19.10	20.25	25.15	25.15	28.15	28.15	33.15	38.15	38.70	40.70	43.15	43.60	52.70	52.70	52.70	52.70	52.70	52.70	52.70	52.70	57.35	57.35	61.05	61.05	61.05
	Non-Skid	3.10	3.30	3.85	3.85	4.15	4.25	4.55	5.05	5.20	5.30	5.45	5.60	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	7.45	7.45	8.85	8.85	8.85
WILSON	Victor Gray Tubes	3.40	3.60	4.25	4.25	4.80	4.80	5.40	6.00	6.30	6.45	6.60	6.75	7.10	7.25	7.55	7.70	7.75	7.90	8.15	8.30	8.45	9.60	9.60	9.60	9.60
	Victor Red Tubes	3.40	3.60	4.25	4.25	4.80	4.80	5.40	6.00	6.30	6.45	6.60	6.75	7.10	7.25	7.55	7.70	7.75	7.90	8.15	8.30	8.45	9.60	9.60	9.60	9.60
	Springfield Tubes	4.25	4.50	5.55	5.55	6.10	6.10	6.70	7.30	7.60	7.75	7.90	8.05	8.40	8.55	8.85	9.00	9.05	9.20	9.35	9.50	10.45	10.45	11.60	11.60	11.60
WOODWORTH	Plain	23.90	25.30	32.60	32.60	33.25	36.30	39.90	46.85	49.90	51.00	51.00	51.00	53.95	53.95	53.95	53.95	53.95	53.95	53.95	53.95	57.95	57.95	61.95	61.95	61.95
	Non-Skid	25.75	27.90	34.90	34.90	35.45	38.50	43.95	49.90	53.45	55.25	56.80	56.80	59.80	59.80	59.80	59.80	59.80	59.80	59.80	59.80	63.80	63.80	67.80	67.80	67.80
	Tubes	3.90	4.00	4.40	4.40	4.55	4.55	4.95	5.35	5.60	5.60	5.60	5.60	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
ZEE-ZEE	Plain	18.85	19.10	21.67	21.67	24.12	24.12	26.57	32.83	34.37	35.61	36.39	37.71	38.89	40.00	41.11	43.90	43.90	43.90	43.90	43.90	47.90	47.90	51.90	51.90	51.90
	Non-Skid	18.85	19.10	21.67	21.67	24.12	24.12	26.57	32.83	34.37	35.61	36.39	37.71	38.89	40.00	41.11	43.90	43.90	43.90	43.90	43.90	47.90	47.90	51.90	51.90	51.90
	Tubes	3.81	4.11	4.35	4.35	4.53	4.53	4.93	5.33	5.68	5.68	5.68	5.68	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08
ZEE-ZEE	Victor Gray Tubes	3.81	4.11	4.35	4.35	4.53	4.53	4.93	5.33	5.68	5.68	5.68	5.68	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08
	Victor Red Tubes	3.81	4.11	4.35	4.35	4.53	4.53	4.93	5.33	5.68	5.68	5.68	5.68	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08	6.08
	Springfield Tubes	4.25	4.50	5.55	5.55	6.10	6.10	6.70	7.30	7.60	7.75	7.90	8.05	8.40	8.55	8.85	9.00	9.05	9.20	9.35	9.50	10.45	10.45	11.60	11.60	11.60

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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BRAKES

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Cydale.	45	146	353	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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TRUCKS—Continued

Name and Model	Tons Capacity	Tires		Price of Chassis	Wheelbase in inches	Kind	Front	Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Spark Plug	IGNITION		Electric System—Type and Make	GOVERNOR		FUEL SYS.		CLUTCH		GEARSET			Torque Taken By	Hand Brake	Foot Brake	BRAKES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Type	Make												Type	Drive		Make	Truck in m.p.h.	Motor in r.p.m.	Carburetor	Fuel Feed	Type	Make	Type	Make					Location	Type	Make	Type	Make	Type	Location	Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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TRUCKS—Continued

Name and Model	TIRES		Price of Chassis			Wheelbase in Inches		Kind		Make Engine		Cylinders Bore and Stroke		S. A. E. Hp.		Valves Placed		Cooling—Water Circulation		IGNITION		Electric System—Type and Make		GOVERNOR		SPEED		FUEL SYS.		CLUTCH		GEARSET			TRANSMISSION		BRAKES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	Front	Rear	Front	Rear	Front	Rear	Front	Rear	Front	Rear	Front	Rear	Front	Rear	Front	Rear	Front	Rear	Type	Make	Type	Make	Type	Make	Type	Motor in r.p.m.	Truck in m.p.h.	Carburetor	Fuel Feed	Tank Location	Type	Make	Type	Location	Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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United.....BSW	31	2350	144	s.	36x4	36x4d	Cont.	4-4-1/2	32.4	2	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	8.7	Sheldon	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.	United.....CSW	31	3150	144	s.	36x5	36x4d	Cont.	4-4-1/2	32.4	2	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	8.7	Sheldon	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.	United.....DSW	31	3450	144	s.	36x5	36x4d	Cont.	4-4-1/2	32.4	2	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	8.7	Sheldon	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.	United.....ESW	5	4250	144	s.	36x6	40x6d	Wauk..	4-4-1/2	36.1	2	1	s.	Bosch..	h.	807	10	Zenith..	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	11.7	Sheldon	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.	United Tractor.....E	24	2400	110	s.	34x3	34x7	Buda..	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Muncie	Muncie	select amid.	3	10.0	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Ross	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.	U.S.....H	24	2650	144
Tiffin.....SW	6	4650	168	s.	36x6	40x6d	Cont.	6-3-1/2	33.7	3	1	s.	Bosch..	h.	1000	10	Schbr..	g.	dp.	B&Bek.	Covert.	select amid.	3	13.0	Sheldon	.....	worm.	rad-rd.	spgs.	int-t-w.	int-t-w.	Ross																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Titan.....	5	5000	156	s.	36x6	40x6d	Buda..	4-4-1/2	32.4	4	1	s.	Bosch..	h.	1000	11	Zenith..	g.	dp.	B&Bek.	Cotta.	select amid.	3	11.0	Clark	.....	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Transport Tractor.....N	5	2750	80	s.	34x3	34x4	Wauk..	4-3-1/2	22.5	4	1	s.	Bosch..	h.	1000	12	Zenith..	g.	dp.	B&Bek.	Cotta.	select amid.	3	7.0	Clark	.....	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Triangle.....A	13	2750	144	s.	34x3	34x6	Wauk..	4-3-1/2	22.5	4	1	s.	Bosch..	h.	1000	15	Stmberg.	g.	dp.	Fuller.	Fuller.	select amid.	3	7.7	Russel.	.....	int-g.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Union.....B	21	2075	152	s.	39x6	34x6	Wauk..	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	Fuller.	Fuller.	select amid.	3	8.6	Sheldon	.....	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
United.....BSW	31	2350	144	s.	36x4	36x4d	Cont.	4-4-1/2	32.4	2	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	8.7	Sheldon	.....	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
United.....CSW	31	3150	144	s.	36x5	36x4d	Cont.	4-4-1/2	32.4	2	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	8.7	Sheldon	.....	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
United.....DSW	31	3450	144	s.	36x5	36x4d	Cont.	4-4-1/2	32.4	2	1	s.	Bosch..	h.	1000	14	Stmberg.	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	8.7	Sheldon	.....	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
United.....ESW	5	4250	144	s.	36x6	40x6d	Wauk..	4-4-1/2	36.1	2	1	s.	Bosch..	h.	807	10	Zenith..	g.	dp.	B-Lipe.	B-Lipe.	select amid.	3	11.7	Sheldon	.....	worm.	spgs.	spgs.	int-t-w.	int-t-w.	Genr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
United Tractor.....E	24	2400	110	s.	34x3	34x7	Buda..	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Muncie	Muncie	select amid.	3	10.0	Sheldon	.....	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Ross																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	.....	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
U.S.....H	24	2650	144	s.	34x4	36x4d	Cont.	4-4-1/2	27.2	4	1	s.	Bosch..	h.	1160	15	Zenith..	g.	dp.	Cotta.	Cotta.	select amid.	3	8.2	Sheldon	int-g.	rad-rd.	spgs.	int-t-w.	int-t-w.	Lvine.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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A Department of

BETTER MECHANICS

No. 55

Packard Twin Six Standard Adjustments

3-25 and 3-35 Models.

By S. T. Williams

THE following adjustments are specific in their nature, and will enable the mechanic to make most necessary adjustments on Packard 3-25 and 3-35 models. By their use rule-of-thumb settings will be avoided, and the mechanic will be able to obtain the correct adjustment in minimum time.

Carbureter Adjustments

A sectional view of the carbureter is shown in Fig. 1. If it is necessary to clean out or check up the spray plug nozzle a No. 53 drill should be used, as this is the proper size to assure satisfactory operation. When correctly adjusted, the float valve will shut off the gasoline so that the upper surface of the liquid is $\frac{1}{8}$ in. below the top of the jet. If the level be higher than this the mixture will tend to be too rich, and if lower too lean.

Air Control Rod

With the carbureter air control cam in the idling position, the knob on the

air control rod should be in No. 4 notch to give the correct setting. When this knob is pulled out as far as possible, both the choke valve and the auxiliary air valve should just close. The air control rod should be adjusted to these settings.

Auxiliary Air Valve Springs

The outside spring of the auxiliary air valve should be set so that the valve is just seated when the adjusting cam is set so that a vertical line will just bisect the angle between the carbureter camshaft levers. To do this:

- 1—Set the carbureter camshaft levers so that they make equal angles on each side of a vertical line between them.
- 2—Loosen the lock nut at the top of the auxiliary air valve stem and turn the adjusting nut until the valve just seats.
- 3—Lock the nut in this position, and check up the adjustment.

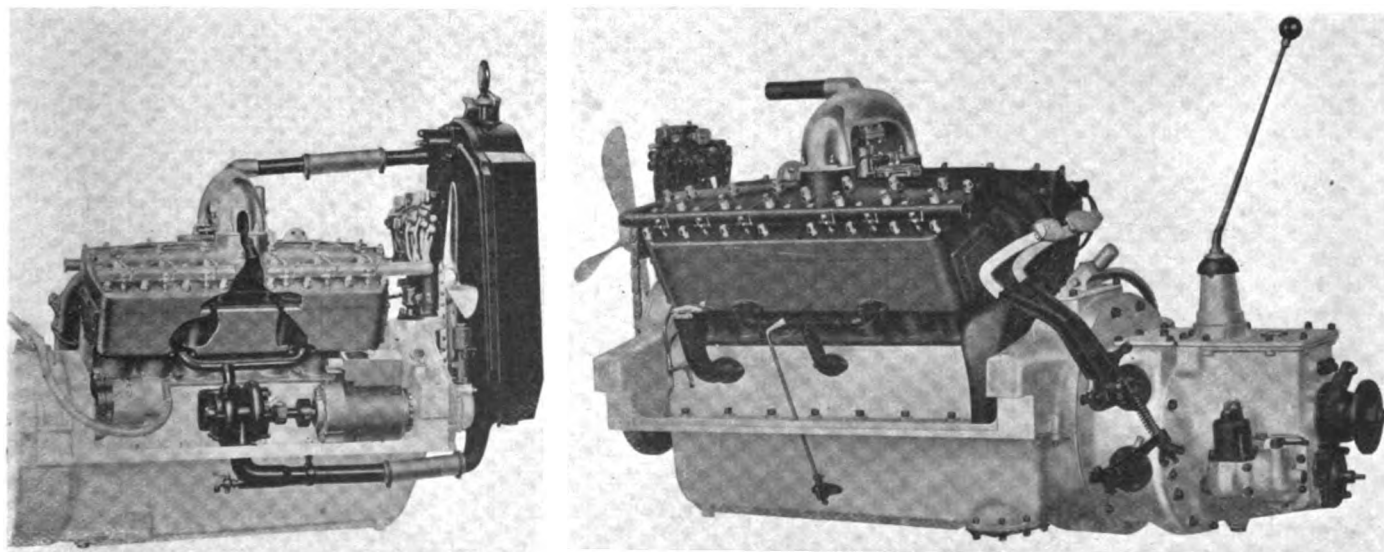
After the air valve cam has been set for the best possible idling position, the valve should have $\frac{5}{32}$ in. drop before striking the inner air valve spring.

To insure proper operation, the accelerator pedal should be adjusted until it comes within $\frac{3}{16}$ in. of the toe board, with the throttle wide open. The air pressure on the gasoline tank should register from $1\frac{1}{2}$ to $2\frac{1}{2}$ lb. on the gage.

Engine Adjustments

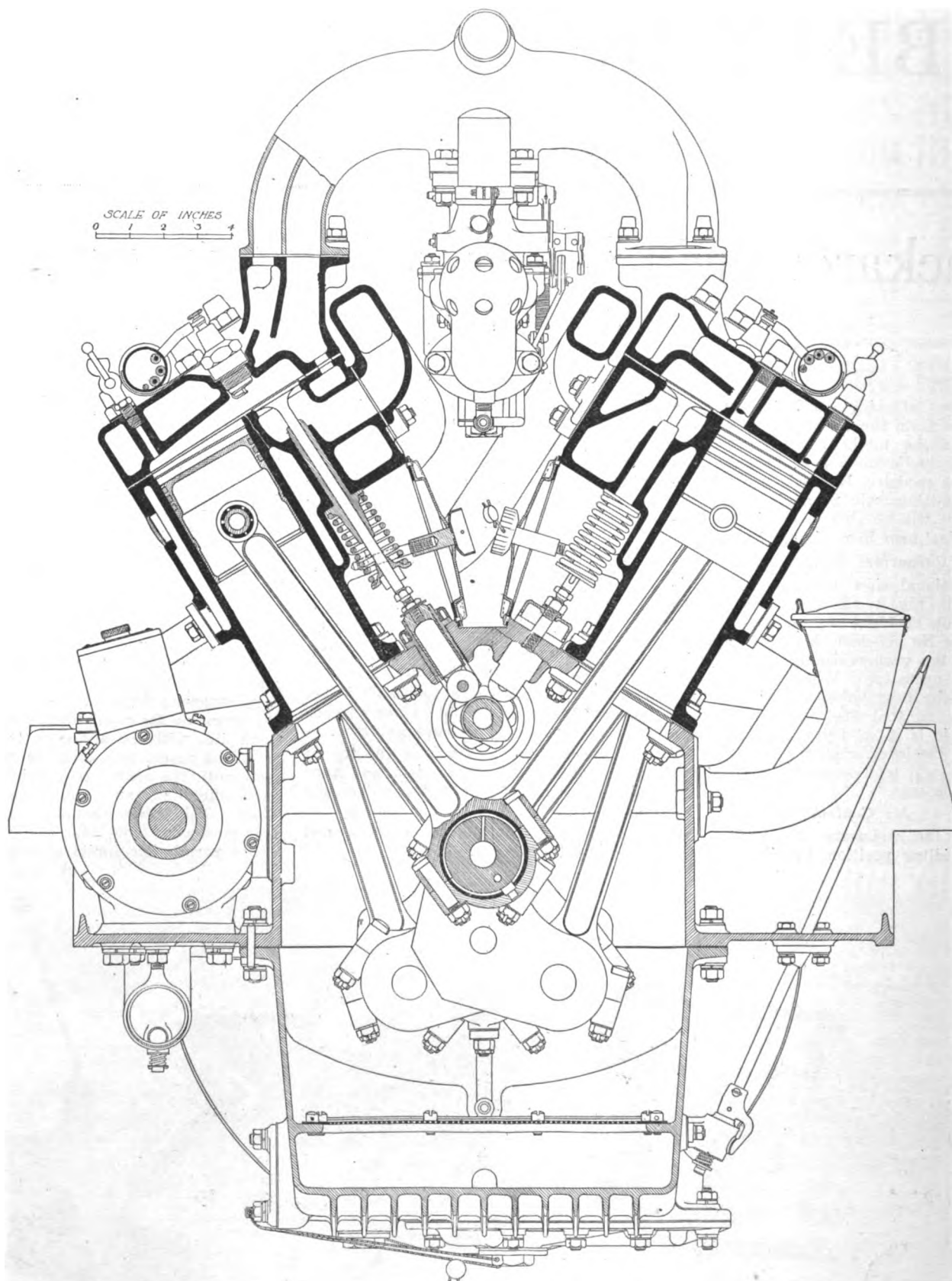
Quiet and smooth operation requires that the valve mechanism be correctly timed and adjusted to the proper clearances. In setting the cam shaft, it is only necessary to crank the engine until the arrow on the crank shaft gear points up in line with the arrow on top of the front end cover; then turn the cam shaft gear until the arrow on it points in the same direction, and apply the timing chain. This chain should have a total free movement of $\frac{5}{8}$ in.

The permissible limits of clearance at



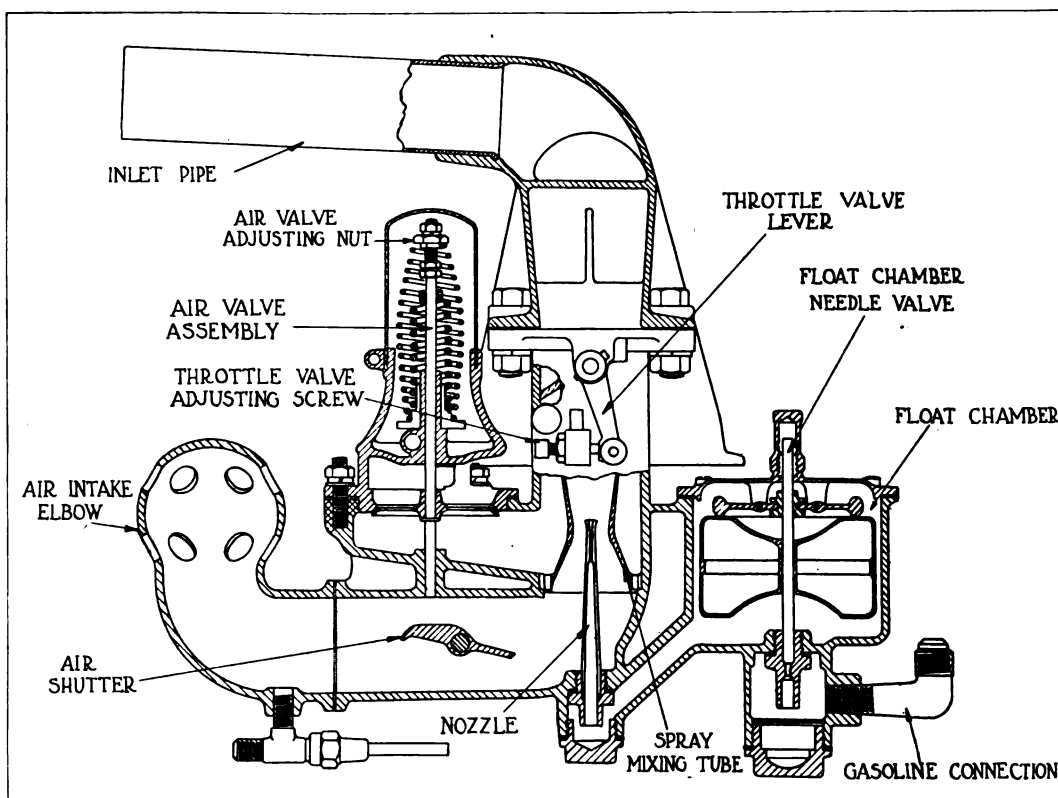
The Packard Twin-Six engine is easy of access and the various component parts are so arranged that repair and adjustment are facilitated. The detachable head makes valve grinding and carbon removal a simple matter

1918 Packard Twin Six Engine



Cylinders in the Series Three engine are 3 by 5 in., cast in two L-head blocks. This illustration gives a good idea of the valve action

Fig. 1—The Packard carburetor has but a single spray nozzle. The cored manifold and the cored intake passages in the cylinder heads are waterjacketed. If this sectional view is consulted when adjustments are necessary, it will give the understanding that is essential to good work



the exhaust valve stem guide are .004 to .0065 in. and those at the inlet valve stem guides are .0025 to .004 in. The clearance at the exhaust valve stem guides must necessarily be greater, as the exhaust valves run at a higher temperature and expand more.

Contrary to the usual practice, the valve tappet clearance is adjusted with the engine cold, and all of the tappets are set to a standard clearance of .004 in. With these adjustments made, providing the piston, rings and valves are in good condition, the compression should not vary 3 lb. either side of 75 lb. on the gage, with the engine cold, throttle wide open and turning at 120 r.p.m. This is equivalent to about 2.5 miles per hour in high gear.

Ignition Pointers

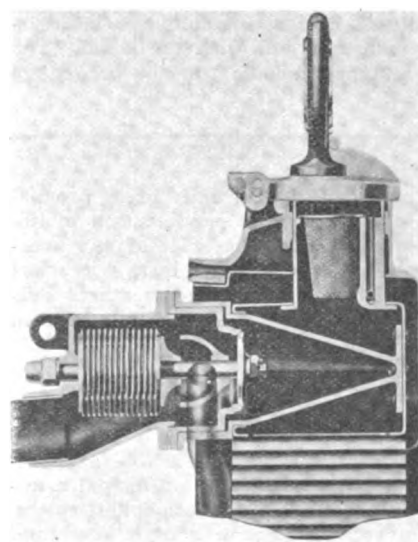
Retiming of the spark should not be necessary unless previous disassembling has disturbed the arrangement of the related parts. The breaking and distributing mechanism should be so set that, with the spark lever fully advanced, the spark occurs 2% in. before upper dead center as measured on the outer circumference of the flywheel. The setting should be made on No. 1 cylinder, which is the forward cylinder on the right, when sitting in the car. The distributor head may be removed and the terminal of No. 1 cylinder is marked.

At all times the breaker points should be smooth and parallel, and the gap should not be less than .015 in. or more than .020 in. As is the case in all multi-cylinder engines, since the lowering of the grade of gasoline in use, too much emphasis cannot be placed on the necessity of having the spark gaps on all

of the plugs uniform. These gaps should not vary more than .002 from 1/32 in. in any case, and a dime may be used as a convenient gage in making the setting.

Bearing Clearances

It is essential in setting the bearings on the engine that certain definite clearances be allowed, and that, as far as possible, guess work adjustments be avoided. The following table shows the proper clearances for the bearings of this engine.



This is the thermostatic controller which regulates the circulation of the cooling water so as to maintain a constant temperature

Main bearings, .0015 to .002 in. clearance.

Connecting rod bearings, .001 to .0015 in. clearance.

Crankshaft, .003 to .005 end play.

Connecting rods, .004 to .005 side play on shaft.

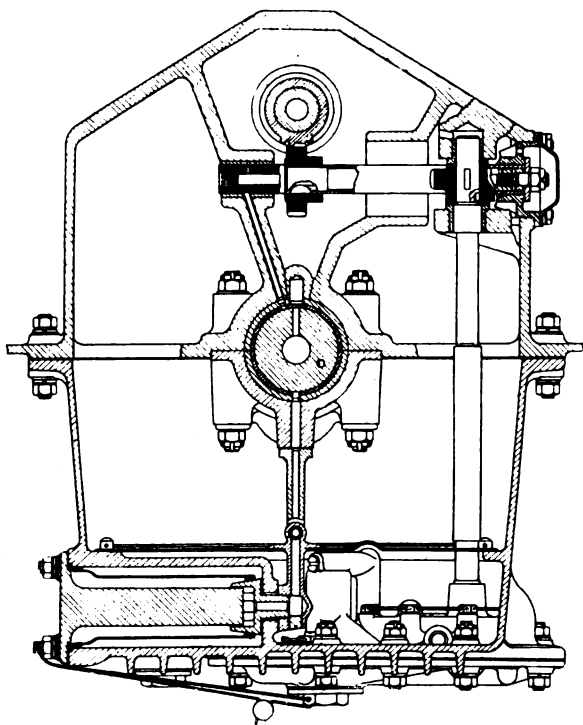
Oil Pump Pressure

At a speed of from 20 to 25 miles per hour, with the engine warmed up, the oil pump pressure should be from 20 to 25 lbs., as shown by the gage on the dash. Failure of the gage to show pressure, after the engine has been running for a few minutes, is an indication of a stoppage in the cylindrical strainer or oil pipes, providing a supply of oil is in the sump. A cold engine will show a higher oil pressure than a warm one, but continued high pressures indicate a stoppage of the oiling system. In either case, the engine should be stopped and the cause determined.

Due to the low grade of gasoline in common use, condensation causes a more rapid thinning of the oil in cold weather. For this reason the oiling system should be drained every 600 miles during the winter months. Plugs for this purpose are provided in the bottom of the crank case and in the oil pump housing. The crank case should be flushed with kerosene poured through the oil filler, but the engine should not be run with kerosene in the system. Fresh oil to the level of the petcock should first be replaced.

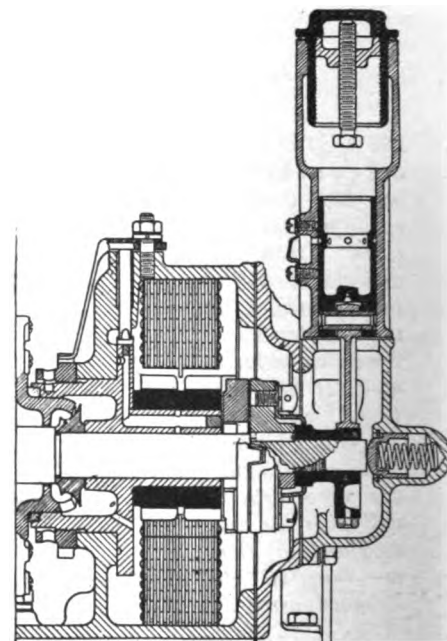
Vibration Damper Adjustments

The vibration damper is on the front end of the crank shaft, and on the 3-25 and 3-35 models, having cast iron pistons, should be adjusted to slip under a pull



This is part of the lubrication system of the Packard twelve showing the location and construction of the oil pump and also the screen through which the oil is pumped

The camshaft is driven by a triangular-drive silent chain in the Packard twelve, and there is means for adjusting the chain for stretch



of approximately 140 lb. On the previous models—2-25 and 2-35—the pull was approximately 95 lb.

To check this adjustment, the fan belt should be removed and a rope wound around the pulley on the crank shaft. A hand scale is hooked into the free end of this rope, and the stud springs in the face of the pulley adjusted until the pulley just slips under a pull not more than 5 lb. either side of 140 lb. in the case of 3-25 and 3-35 engines having cast iron pistons.

Regulator Voltage

At an engine speed equivalent to 20-25 miles per hour, the generated voltage should be from 7.3 to 7.8 volts. If this is not the case, no adjustment should be attempted. The entire unit should be removed, a new one installed and the old unit sent either to the Packard factory or to the Bijur company.

Miscellaneous Adjustments

The front wheels should be set to toe in from $\frac{3}{8}$ to $\frac{1}{4}$ in. less in front than at the rear of the wheels, as measured on the center line of the wheels. The steering knuckle stops should be set to give $4\frac{1}{4}$ in. clearance between the spring and the inside of the felloe band. This will give the minimum turning radius.

The clutch brake should be so adjusted that when the clutch pedal is pushed down against the floor board the spring is compressed from $\frac{3}{32}$ to $\frac{1}{8}$ in. The necessary adjustments can be made by sliding the whole assembly along the slot in the clutch cover.

The front wheel bearings should be adjusted by first tightening up the adjusting nut with a wrench having a handle 12 in. long as tight as the average man can pull with one hand. The adjusting nut should then be backed up

one-half turn and locked in this position.

The change speed lever ball should have a clearance of 2 to $2\frac{1}{2}$ in. from the instrument board, with the lever in the reverse position, the center line of the ball coinciding with the center line of the engine.

The foot brake connecting rod should normally be in the upper hole of the rocker lever. Though the lower hole gives more leverage, it likewise gives less clearance. The foot brake bands should have a clearance of $\frac{1}{32}$ in. all around the drum when released.

The hand brakes may be adjusted at the forward end of the rods connecting with the cam levers. To set the bands concentric, it is necessary to remove the wheels and turn the set screw at the rear of the brake. These brakes should be so adjusted that when the hand lever is in the sixth notch the wheels can no longer be turned by hand.

Minnesota Expects Record Registration

ST. PAUL, Jan. 31—At the rate of probable gain over the registration of automobiles for the three-year period just ended of 191,000, the total for 1918-1920 is expected by the Secretary of State to reach 225,000. The gain for the last triennial was 54,000 cars. With the new total the revenue for the highway fund this year will be \$1,125,000. The license fee now is \$5 for 3 years as against \$1.50 before. Motorcycles, which will pay \$5, number 11,000, and no increase is expected.

Detroit Needs Tool Designers

DETROIT, Jan. 31—There is a big demand for tool designers and draftsmen throughout the industrial districts of this section of the country. Advertisements

are appearing in the daily press promising high wages and participation in liberal bonus plans. The rate of pay averages about 65 cents per hour with time and one-half for overtime to start. Pattern makers and other specialized men are also in demand.

Rockford Dealers on Cash Basis

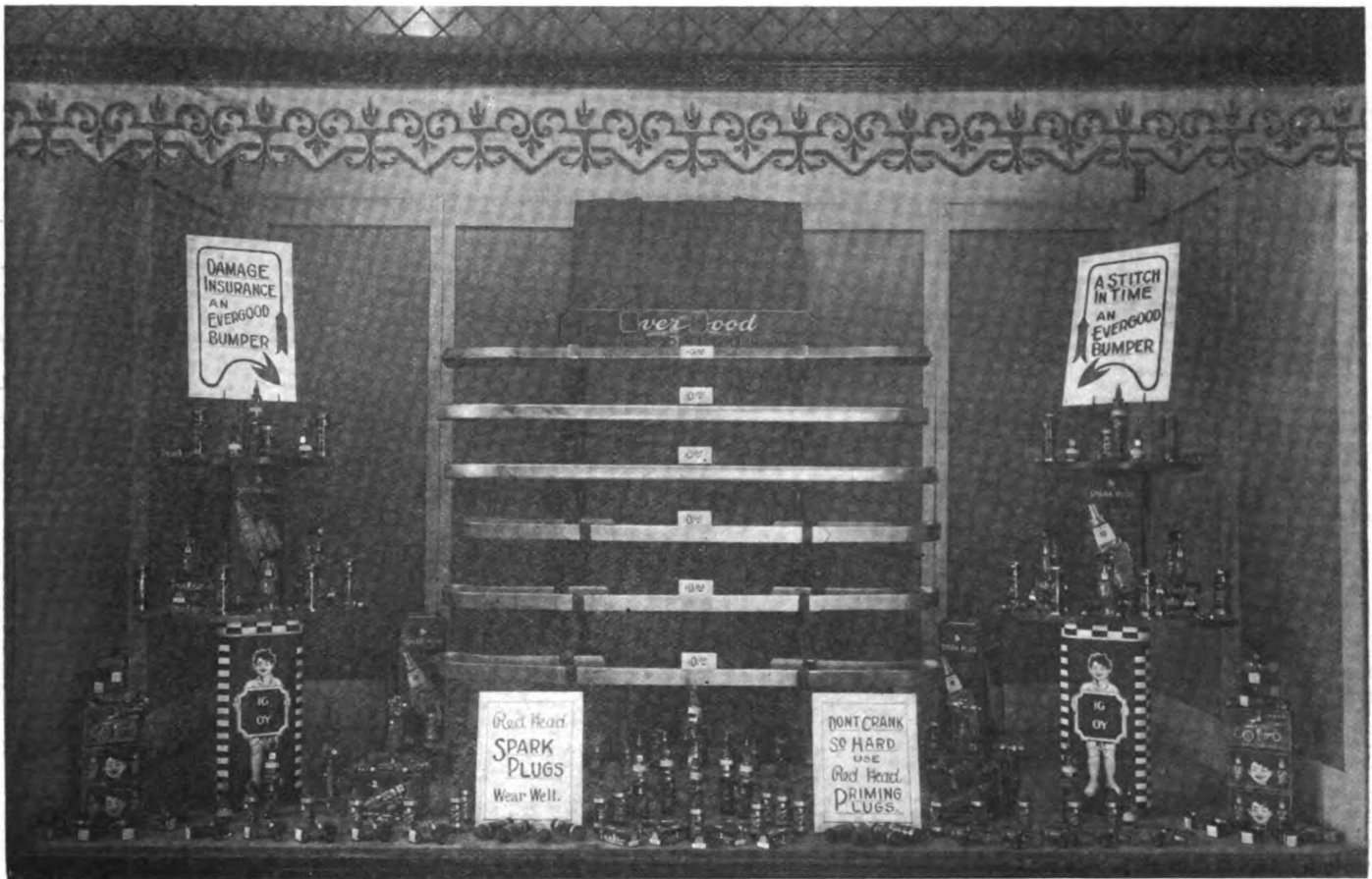
ROCKFORD, ILL., Jan. 31—At a recent meeting some of the principal members of the Rockford Automobile Dealers' Assn. voted to go on a cash basis and also to use the trade acceptance system. The Joslyn Automobile Co. has cut down the number of its charge accounts from 1250 to 207, and will do all other business for cash or acceptance, the latter being due on the 10th of the month following the date of purchase.

Tractor School in California

LOS ANGELES, Jan. 31—To hasten the coming of the motor on the farm the University of California in February will conduct a tractor course at the citrus experimental station maintained by the university at Riverside. A tractor course held recently at Davis, Cal., was attended by 184, most of them practical ranchers and many of them men of middle age and well-to-do land owners. They came from every part of California and some were registered from Pennsylvania, Illinois, Mexico and Peru.

The experts in agricultural engineering of the university and the demonstrators sent by a number of tractor factories will give talks and exhibitions during the course on how to use tractors economically, how to care for ignition systems, lubrication and valve timing

Motor World Window Service



How to Set Up This Display

The bumper stand, with bumpers attached, is the feature of this window. The price signs are only a suggestion of how to place them after the actual price has been made.

On each side of the bumper stand are the cartons supplied by the Emil Grossman Corp. They are used as pedestals for the display of the spark plugs. On each side are 24 in. oak shelves, but glass or cardboard may be used, or even packing case boards covered with crêpe paper or cloth will serve.

On top of these shelves are two spark plug cartons supporting 18-in. round shelves. The signs shown can be secured from any local sign writer at a nominal cost.

The material displayed behind the Evergood bumper may be red broadcloth, rep, cheesecloth, or crêpe paper. The color harmonizes with the spark plug boxes, bringing the whole display into prominent relief. This window will attract immediate and favorable attention.

Use These 3 Letters

Bumper Letter No. 1

Wouldn't it be fine if you could insure yourself against dying at all or against having an accident? You would consider your premiums well invested.

The first of these you can't do. The second you can—to a great extent.

Safety first!

Use foresight.

Think how you can prevent accidents.

Prevention is better than cure.

An Evergood Bumper may save you a broken leg—or neck—and a large repair bill besides.

Compare the cost of a bumper with the cost of a doctor, hospital and repair bill combined!

Come in and ask our bumper man. A car without a bumper is like a locomotive without a cowcatcher. It isn't finished.

P. S. The Evergood is ornamental, too.

Bumper Letter No. 2

Suppose somebody backs without warning and scrapes six dollars' worth of nice fresh finish off your new car. He also bends one of your fenders slightly and breaks a lamp.

You don't insure against these little things.

Perhaps he pays you for the damage—we say, perhaps—but at the best you are subjected to delay, annoyance and inconvenience, and at the worst to all these, plus expense.

Not all collisions are fatal, of course, but nearly all do some damage.

If your car is equipped with an Evergood Bumper the damage is always minimized—often wholly prevented.

The bumper doesn't mind bumps. The car does.

The car isn't built to stand them. The bumper is.

Don't take chances.

A bumper to-day may save a bump to-morrow.

Look at our window. Then come in and ask us.

P. S.—You had better have one at the rear, too. You can't see what the man behind you is doing.

Bumpers and Plugs

Do you see the connection between a spark plug and a bumper?

We are displaying both in our window and we think the display and the idea are both good.

No spark plug—no bumper.

If your car is idle it needs no protection. The more active it is the more chances there are that you may have a collision.

The better spark plug you use the more certain you are of prompt and continuous action.

Therefore equip your car with an Evergood Bumper.

BUT

If your engine doesn't answer instantly every demand made upon it, get Red Head plugs and avoid the result of others' carelessness. Prevent collisions by getting out of the way quickly.

This spares your bumper for some other time.

See the connection? Come, look at the display.

P. S.—These are not the only things we sell.

Repairshop Shortcuts

From The Motor World Roadman

No. 1538—SHOP BENCH SYSTEM

It is not the usual custom to clearly define the limits of each individual repair stall, and to separate portions into corresponding divisions. By so doing, however, each car is allotted the necessary amount of space, and the mechanic is enabled to keep the parts and tools of any one job together at all times. Such a division may be readily accomplished by separating the repair bench off into 9 ft. divisions by wooden partitions. A vise is provided for each division, and the car to be repaired is placed heading into its stall.—Buick Service Station, Detroit.

No. 1539—SPECIAL WRENCHES FOR DORT TAPPETS

The illustration shows three convenient wrenches for adjusting the tappets with relation to the valve-stem on all Dort cars. They are 3/16 in. thick at the jaws and are cut to fit the tappet, the jam-nut and the screw respectively. By their use the adjustment is made in a few minutes; a work of considerable time and difficulty with a standard wrench.—C. C. Spreen, Flint.

No. 1540—TORCH LIGHTER

When burning the terminals of a storage battery in place, or in doing welding work, it is necessary to continually light and re-light the torch. This may be quickly done by means of an electrical device, similar to a cigar lighter and operated from several dry cells. These cells are connected to an ordinary kick coil of the type used in make and break ignition systems. One end of this coil is attached to the torch rest and the other to a post bearing a brass spring. When the end of the torch is whipped over this spring the breaking of the current creates a spark jumping to the tip and lighting the torch.—E. Moore, Auto Electric Service Station, Detroit.

No. 1541—TOWING DOLLY

Two brake drums, one larger than the other, may be used as the tuning table of a towing dolly. A channel crossbar is attached to the upper drum and carries the axle of the wrecked car. The lower drum is bolted to the dolly axle, which carries two steel wheels on roller bearings. A feature of this dolly is that the towing pull may be offset to counteract the resistance when only one wheel is out of commission.—W. J. Stewart, Jr., Buick Motor Co., Pittsburgh.

\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

No. 1542—JIG FOR TRUING WIRE WHEELS

The illustration clearly shows an easily made wooden stand or jig for truing up wire wheels. The center screws are adjusted to the hub and two gauges are provided which indicate any irregularity in the diameter of the wheel or any lateral twist of the rim.—C. E. Bradish, 106 Queensbury Street, Boston.

No. 1543—BATTERY TESTER

As most all automobiles have a storage battery for lighting, starting and ignition system, and about every two weeks the solution must be tested to see that it is about 3/4 or 1/2 in. above the plates.

By using the method shown the height of solution can be tested. Insert the glass tube until it touches the top of the plates, then close upper end of tube with finger and withdraw the tube from battery and the height of solution in glass tube indicates the height of solution above battery plates.—C. C. Spreen, Flint.

No. 1544—SHOP DRAWING BOARD

Most mechanics do not realize the advantage of a shop drawing in the construction of special tools or in laying out a new method of repair. Not only may the work be accurately outlined in advance, but an accurate record of the job is kept for future reference. As an aid in this work, a swinging drawing-board, extended only when in use, is most convenient. The board is hinged to the wall and provided with a swinging leg that is used to hold it in the upright position. When not in use, it is again swung back flat to the wall out of the way.—Buick Service Station, Detroit.

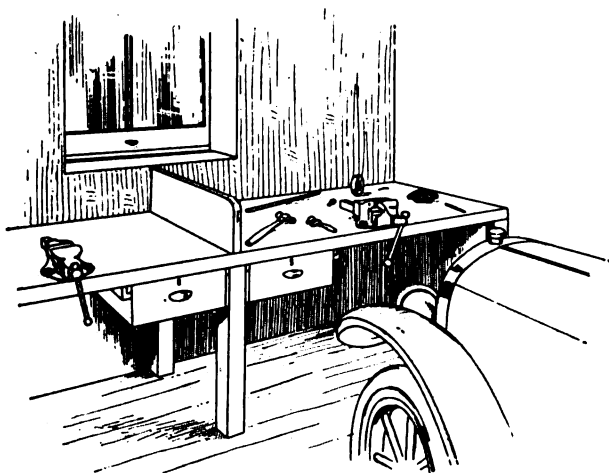
struction of special tools or in laying out a new method of repair. Not only may the work be accurately outlined in advance, but an accurate record of the job is kept for future reference. As an aid in this work, a swinging drawing-board, extended only when in use, is most convenient. The board is hinged to the wall and provided with a swinging leg that is used to hold it in the upright position. When not in use, it is again swung back flat to the wall out of the way.—Buick Service Station, Detroit.

No. 1545—VALVE SEAT REAMER

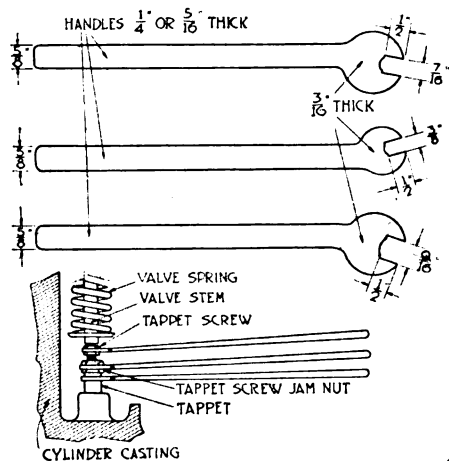
Valve seats may be quickly reamed to a true surface by means of a special reamer that may be made in any shop possessing a lathe. This reamer comprises a central rod, or guide, threaded in the central portion, and carrying a handle at the upper end, the cutters being pinched between two threaded bushings. The lower end of the central rod, or guide, is of the same diameter as the valve stem, and the threaded portion is enough larger to permit the bushings to be slipped in place. The lower bushing is cut away to hold the cutting tools, which are tool steel, beveled and sharpened to the angle of the valve seat. The upper bushing holds these tools firmly in position. It is advisable to make the reamer of machinery steel.—Buick Service Station, Detroit.

No. 1546—VENTILATING FAN

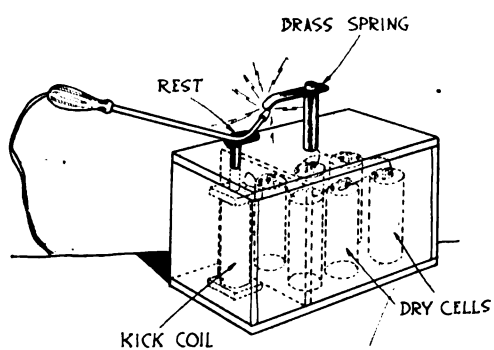
Particularly in summer, the problem of maintaining a circulation of air through the shop and preventing the accumulation of dangerous gases, is always present. Small amounts of exhaust gas, or gasoline vapor, tend to lower the efficiency of the workmen and large amounts are positively dangerous to life. In many shops a conventional ventilator is provided, and a more positive circulation of air may be induced by a power-driven fan mounted in a wooden housing at the bottom of the ventilator. Such a fan may be steel, of the propeller type, and mounted at the end of a jack shaft, belt-driven from the power line, or an individual motor may be used. In some shops discharge through the roof is impossible and here a side wall outlet is necessary. But the health, efficiency, comfort and safety of the workmen is promoted by the installation of some means whereby the exhaust gases may be removed from the shop.—Buick Service Station, Detroit.



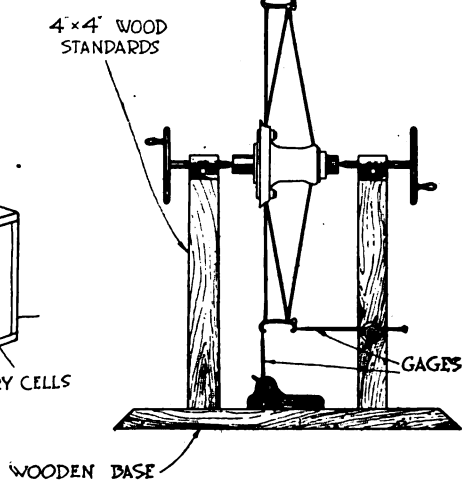
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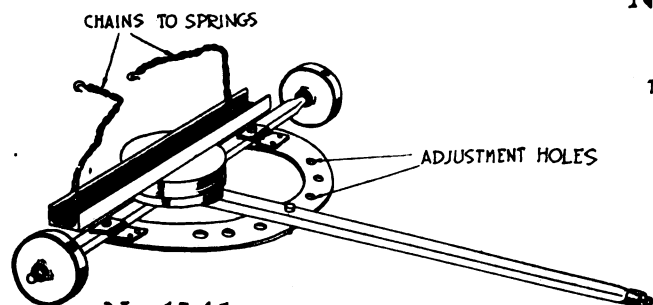
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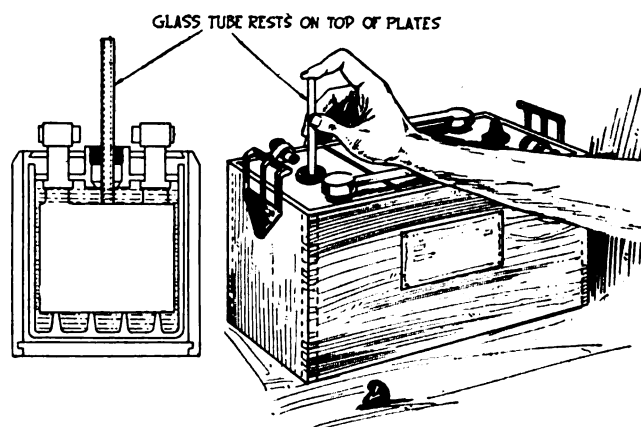
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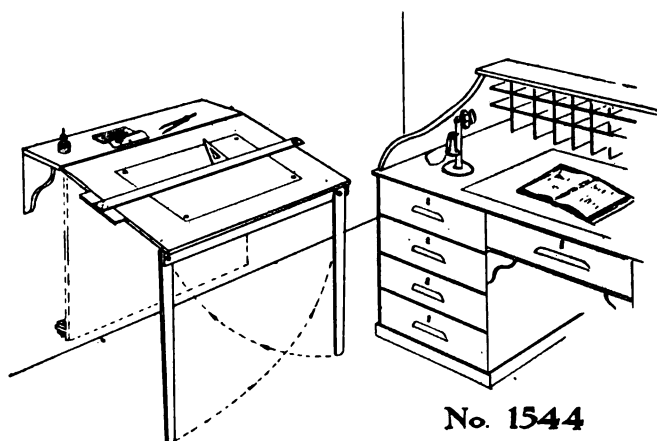
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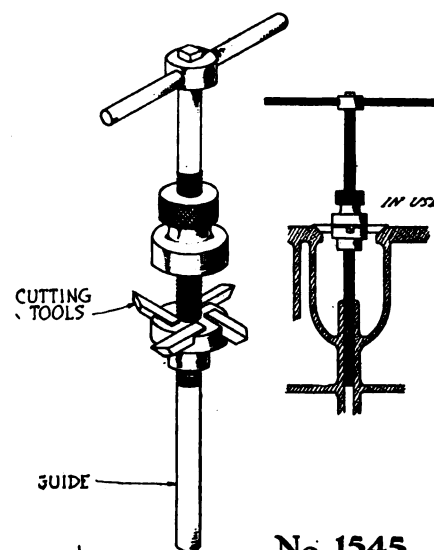
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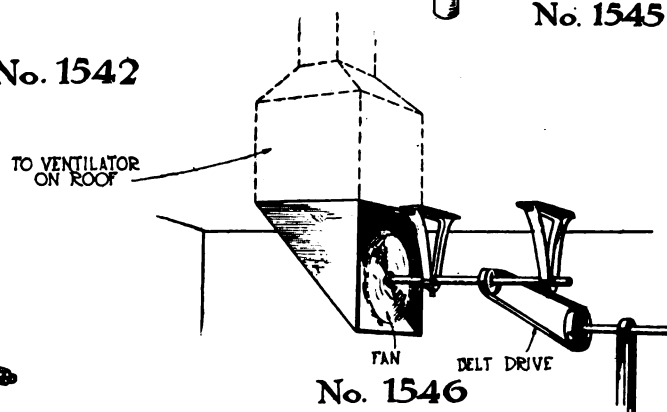
No. 1543



No. 1544



No. 1545



No. 1546

Winter Business

SAVE
Sugar
Wheat
CARS

EFFICIENT CONSERVATION

Conservation is now a patriotic duty. Conservation is not parsimony. Conservation is wisdom.

And, curiously enough, we are beginning to realize that by SAVING WISELY we actually do more business than under the wasteful conditions to which we have become accustomed.

Is a customer undecided whether to buy a new car or make the old one do for one more season? Here is a chance to test your wisdom, your patriotism and your honesty all at once.

There is no economy in PATCHING UP a car that isn't worth it. There is no sense in THROWING AWAY a car that simply needs thorough overhauling. There is no honesty in PERSUADING a customer in either case to decide against his own interests.

You are the expert—the consulting engineer. The customer looks to you for unprejudiced advice. Let him not be mistaken. If his experience shows him you are right he will remember you.

If he finds that your advice has put a few dollars in your pocket at a useless cost to him he will also remember you.

But OH, what a DIFFERENCE!

Now—to get down to what we started to say—NOW is the time to make this decision. Countless cars now need overhauling. Don't wait until spring. Do it NOW. Save the good old cars. Make them as good as new. There will not be as many new cars as usual next spring anyway. The Government needs much of the factory space and output.

AND IT IS GOING TO NEED MORE.

Don't do your bit. A bit is not enough. Do your ALL. Preach conservation; practice conservation; work for conservation.

Conservation is good business.

And NOW is the time.

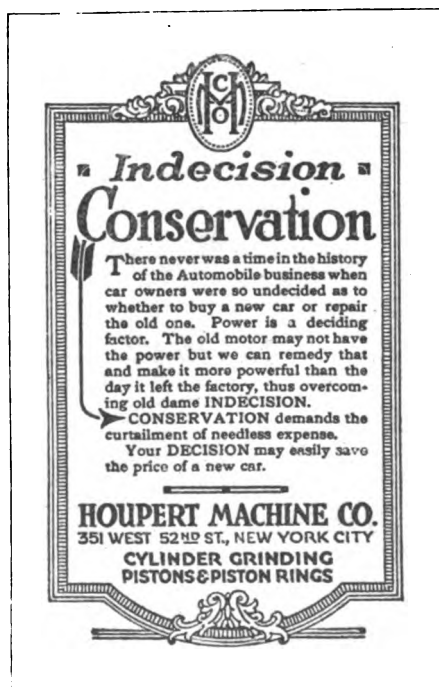
It is wisdom.

It is patriotism.

Conservation and Winter Business

THE Houpert Machine Co., New York, has issued this excellent Winter Business suggestion. The story is all there and deserves careful attention. There is no end of cars that need repairing now, and unless they get it now they will add to the congestion when the spring rush comes. Many an old car, properly overhauled now, will give good service later, and the money saved through such wise conservation will come in very handy when a new car is really needed.

These suggestions are shown here to be used. Use them. Tell your customers why they should take this time to make their repairs. Tell them why they should make more repairs now than ever before. Make every old car a new car. It is your duty to spread the doctrine of economy. In this instance you can make money by it too.

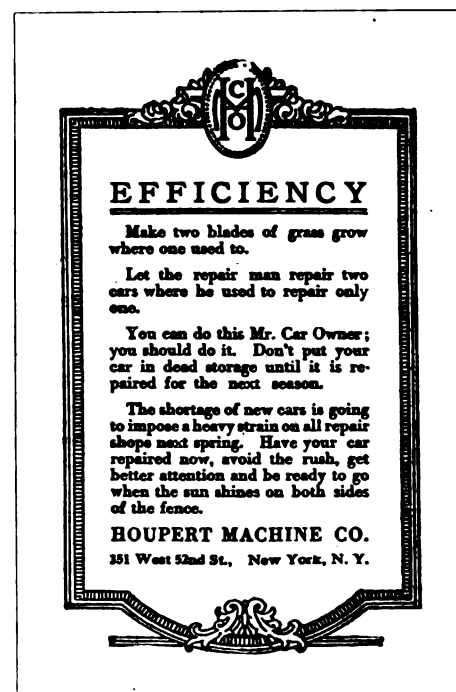


Indecision Conservation

There never was a time in the history of the Automobile business when car owners were so undecided as to whether to buy a new car or repair the old one. Power is a deciding factor. The old motor may not have the power but we can remedy that and make it more powerful than the day it left the factory, thus overcoming old dame INDECISION.

CONSERVATION demands the curtailment of needless expense. Your DECISION may easily save the price of a new car.

HOUPERT MACHINE CO.
351 WEST 52ND ST., NEW YORK CITY
CYLINDER GRINDING
PISTONS & PISTON RINGS



EFFICIENCY

Make two blades of grass grow where one used to.

Let the repair man repair two cars where he used to repair only one.

You can do this Mr. Car Owner; you should do it. Don't put your car in dead storage until it is repaired for the next season.

The shortage of new cars is going to impose a heavy strain on all repair shops next spring. Have your car repaired now, avoid the rush, get better attention and be ready to go when the sun shines on both sides of the fence.

HOUPERT MACHINE CO.
351 West 52nd St., New York, N. Y.

How Hartford Digs Up Prospects

Here's a Good Example of Winter-Business-Getting Co-operation

Here are the details of a

WINTER DRIVE

ON

Hartford

Automobile Equipment

in a list of the big newspapers in New York, Philadelphia and Chicago with an aggregate circulation of

More than 5,000,000 Copies

Winter motoring is decidedly the vogue. Fewer cars than ever have been "put up" for the winter. The all-season car is now generally used. New devices for keeping the cold out and the warmth in have made motoring in winter as practical as in summer.

You've noticed, no doubt, that in the big cities, especially, the motor traffic has become almost as congested in January, February and March as in June, July and August.



Hartford
SHOCK ABSORBERS

IN SLIPPERY, SLOSHY WEATHER
car control is less certain. The Hartford Shock Absorber prevents damage by parrying the blow and absorbing the bump.

Rough, snow-bumpy, frost-hardened winter roads are emphasizing the desirability of the

Hartford
SHOCK ABSORBERS

"Makes Every Road a Boulevard" to carry a car and its load smoothly over the numerous shock-jolt-vibration-producing inequalities of winter time.

Slippery, slushy, icy pavements are multiplying the occurrence of collisions—trivial in most cases—but, in all, damaging and straining to a car and its attachments. The genuine necessity of the

Hartford
SHOCK ABSORBERS

"The National Guard for Motor Cars" during these winter days is emphatically in evidence. There's a big winter market for it.

Let's have your earnest co-operation to our mutual benefit.

EDWARD V. HARTFORD, Inc.,
143-149 Morgan St., Jersey City, N. J.
Branches: NEW YORK: 1846 Broadway and 1926 Broadway
CHICAGO: 1716 Michigan Avenue
Hartford Agency: PHILADELPHIA, 1437 Vine St.



ON GUARD!
Protects your automobile from damage.

Hartford
SHOCK ABSORBERS

"The National Guard for Motor Cars"



"SOLID COMFORT"
Good roads everywhere for him who uses

Hartford
SHOCK ABSORBERS

No jolts! No jars! No vibration! Just solid comfort and longer car life.



PROTECT YOUR CAR

Hartford
SHOCK ABSORBERS

parries the blow, absorbs the bump, prevents damage and expense.



THE EASY LIFTER

Hartford
SHOCK ABSORBERS

His car wore a Hartford Shock Absorber.

DON'T WASTE YOUR TIME ON DEAD ONES

Those old prospect files ought to be cleaned out. Chuck the deadwood into the ash can. Postage costs 3 cents now, so what's the use of circularizing a dead list. Go over it carefully. Weed out the dead ones. Add some live ones. And then—just because postage happens to be high don't get writer's cramp. Keep right on with the sales work. The more sales work you do the more you'll sell, and the more you sell the more money you'll make—provided you get the price.

Send us *YOUR* Winter Business suggestions. Publish the good things. If they have helped you they will help others. And that goes two ways!



January 19, 1918.

Messrs. Dealer & Co.,
Calumet, N. Y.

Gentlemen:

Don't let the Cold Weather Bugbear scare away your profits.

Winter Business will meet you half way.

Your co-operation and our Winter Newspaper Advertising Campaign will cover the other half.

Read the particulars in the enclosed prospectus and note that this co-operative advertising will appear in New York papers as follows:-

Times--Jan. 14-17-21-24-28-31-Feb. 4-7-11-14-18-21-25-28
Journal--Jan. 15-18-22-25-29-Feb. 1-5-8-12-15-19-22-26-Mar. 1
Globe--Jan. 16-19-23-26-30-Feb. 2-6-9-12-16-20-23-27-Mar. 2.

Get the spirit and you'll get the profits.

Our New York Branch at number 1846 Broadway is there to help you and will.

Very truly yours,
EDWARD V. HARTFORD, Inc.,
Sales Manager.

Hartford Shock Absorber Hartford Bump Absorber STANDARD HARTFORD EQUIPMENT Hartford Auto Jack Hartford Electric Brake

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

Untangling the Income Tax

By George F. Kaiser

THIS year you will find that the income tax law is more complicated than ever and that more persons are obliged to file returns and to pay the tax.

The tax itself has been largely increased while the exemptions have been cut down.

The law still provides, however, that returns must be filed on or before March 1 with the Collector of Internal Revenue for the District where you reside or if preferred where you have your place of business. Although returns must be filed by March 1, the tax can be paid any time before June 15.

The old division of taxpayers into married and unmarried classes is continued. Single persons with incomes of \$1,000 and over must file returns while married persons need not file them unless their joint income is \$2,000 or over. The following is a good example of the difference in the law as regards married and unmarried persons.

Net Income	Tax
\$1,000 Single person must make return	None
2,000 Single person	\$20
Married person must file return	None
3,000 Single person	40
Married person	20
4,000 Single person	80
Married person	40
5,000 Single person	120
Married person	80

(See full compilation at end of this article.)

While an exemption of \$2,000 was allowed unmarried persons last year, all amounts over \$1,000 are taxable this year. So too as regards married persons the exemption has been cut down—from \$3,000 last year to \$2,000 this year.

Heads of families are persons supporting other persons related by blood, marriage or adoption as well as married persons and their exemptions are the same.

Incomes over \$1,000 if a person be unmarried, and over \$2,000 if a person be married, will be charged with a tax of 2 per cent this year, under the new law. In addition another tax of 2 per cent under the old law is imposed on

amounts over \$3,000 for unmarried persons and on amounts over \$4,000 for married persons. Incomes of over \$5,000 have a third tax of from 1 per cent to 50 per cent levied on them.

The chart with this article shows the complete tax on incomes of from \$1,000 to \$5,000,000 and also shows how the total amount is arrived at under the present system of taxation.

The income on which a tax must be paid is figured out as per the table below:

Married persons are allowed a further deduction for each child under 18 years of age. They may deduct \$4 from their tax for each child if the total tax is under \$40 and an additional \$4 from their tax for each child from the amount by which the tax exceeds \$40.

In other words, if the total tax is \$35 and the person has one child, \$4 may be deducted. If the total tax is \$50 and the person has two children, \$4 may be deducted from the \$40 and another \$4 may be deducted from the \$10, the amount by which the total tax exceeds \$40. In this latter case the actual tax would be \$42.

Partners as heretofore, file individual returns.

Anyone paying out \$800 or more to a person as a salary, etc., must file a true report with the Commissioner of Internal Revenue, of the amount of income paid and the name and address of the person to whom the payment is made.

Penalties for failing to file returns by March 1 are not less than \$20 fine nor more than \$1,000 fine and in addition 50 per cent of the tax due, while for failure to pay the tax when due, 5 per cent of the amount unpaid plus 1 per cent interest per month is charged, while the tax remains unpaid.

INCOME	
Salary, wages, commission, bonuses and pensions	\$3,000
Income from business, farm or profession	2,000
Profit from sale of land, buildings and other property, real or personal	1,000
Income from rents and royalties ..	1,000
Other income:	
Dividends on stocks	400
Dealings on stocks	1,250
Partnership profits	1,750
Interest on Liberty bonds (over \$5,000)	100
Total	\$10,500
Deduct expense	2,500
Net income	\$8,000

Tax as per chart, if married \$235, if unmarried \$275.

Making false or fraudulent returns is punishable by a fine of not more than \$2,000 or not more than one year in prison or both and 100 per cent of the tax evaded in addition.

This year corporations are subject to the old normal tax of 2 per cent under the act of 1916 and also a normal tax of 4 per cent under the act of 1917. Corporations making returns must set out their incomes in the following order:

INCOME	DEDUCTIONS
1. Operations.	1. Expenses—general.
2. Rentals.	2. Losses sustained and charged off within the year.
3. Interest.	3. Depreciation.
4. Dividends.	4. Interest on indebtedness.
5. Other services.	5. Tax paid.
	6. Depletion.

All corporations should file an income tax report no matter how small the amount of their income is. The penalty for corporations failing to file returns may amount to \$10,000 and 50 per cent in addition to the regular amount of the tax may be imposed.

Excess Profit Tax

This tax is levied upon the net income of corporations, partnerships and individuals, in excess of certain deductions, realized from trades, businesses, professions and occupations. This tax is in addition to the income tax, but the amount of the tax can be deducted from the income when the income tax is paid.

Where no principal or only a normal principal is employed, there is a flat tax of 8 per cent on income in excess of \$3,000 in the case of corporations, or \$6,000 in the case of individuals or partnerships.

EXPENSE (DEDUCT)	
Business expenses	\$1,500
Interest paid	150
Taxes paid	50
Losses	500
Bad debts	200
Depreciation	100
Total	\$2,500

This Table Shows How Much Tax You Pay

Income	MARRIED PERSONS					UNMARRIED PERSONS				
	Old Tax	Old Sur-tax	New Tax	New Sur-tax	Total	Old Tax	Old Sur-tax	New Tax	New Sur-tax	Total
\$1,000.....								\$2		\$2
1,100.....								4		4
1,200.....								6		6
1,300.....								8		8
1,400.....								10		10
1,500.....										
1,600.....								12		12
1,700.....								14		14
1,800.....								16		16
1,900.....								18		18
2,000.....								20		20
2,100.....			\$2		\$2			22		22
2,200.....			4		4			24		24
2,300.....			6		6			26		26
2,400.....			8		8			28		28
2,500.....			10		10			30		30
2,600.....			12		12			32		32
2,700.....			14		14			34		34
2,800.....			16		16			36		36
2,900.....			18		18			38		38
3,000.....			20		20			40		40
3,100.....			22		22	\$2		42		44
3,200.....			24		24	4		44		48
3,300.....			26		26	6		46		52
3,400.....			28		28	8		48		56
3,500.....			30		30	10		50		60
3,600.....			32		32	12		52		64
3,700.....			34		34	14		54		68
3,800.....			36		36	16		56		72
3,900.....			38		38	18		58		76
4,000.....			40		40	20		60		80
4,100.....	\$2		42		44	22		62		84
4,200.....	4		44		48	24		64		88
4,300.....	6		46		52	26		66		92
4,400.....	8		48		56	28		68		96
4,500.....	10		50		60	30		70		100
4,600.....	12		52		64	32		72		104
4,700.....	14		54		68	34		74		108
4,800.....	16		56		72	36		76		112
4,900.....	18		58		76	38		78		116
5,000.....	20		60		80	40		80		120
5,500.....	30		70	\$5	105	50		90	\$5	145
6,000.....	40		80	10	130	60		100	10	170
6,500.....	50		90	15	155	70		110	15	195
7,000.....	60		100	20	180	80		120	20	220
7,500.....	70		110	25	205	90		130	25	245
8,000.....	80		120	35	235	100		140	35	275
8,500.....	90		130	45	265	110		150	45	305
9,000.....	100		140	55	295	120		160	55	335
9,500.....	110		150	65	325	130		170	65	365
10,000.....	120		160	75	355	140		180	75	395
10,500.....	130		170	90	390	150		190	90	430
11,000.....	140		180	105	425	160		200	105	465
11,500.....	150		190	120	460	170		210	120	500
12,000.....	160		200	135	495	180		220	135	535
12,500.....	170		210	150	530	190		230	150	570
13,000.....	180		220	170	570	200		240	170	610
13,500.....	190		230	190	610	210		250	190	650
14,000.....	200		240	210	650	220		260	210	690
14,500.....	210		250	230	690	230		270	230	730
15,000.....	220		260	250	730	240		280	250	770
20,000.....	320		360	500	1,180	340		380	500	1,220
25,000.....	420	\$50	460	850	1,780	440	50	480	850	1,820
30,000.....	520	100	560	1,200	2,380	540	100	580	1,200	2,420
35,000.....	620	150	660	1,550	2,980	640	150	680	1,550	3,020
40,000.....	720	200	760	1,900	3,580	740	200	780	1,900	3,620
45,000.....	820	300	860	2,400	4,380	840	300	880	2,400	4,420
50,000.....	920	400	960	2,900	5,180	940	400	980	2,900	5,220
55,000.....	1,020	500	1,060	3,400	5,980	1,040	500	1,080	3,400	6,020
60,000.....	1,120	600	1,160	3,900	6,780	1,140	600	1,180	3,900	6,820
70,000.....	1,320	900	1,360	5,300	8,880	1,340	900	1,380	5,300	8,920
80,000.....	1,520	1,200	1,560	6,700	10,980	1,540	1,200	1,580	6,700	11,020
100,000.....	1,920	2,000	1,960	10,300	16,180	1,940	2,000	1,980	10,300	16,220
150,000.....	2,920	4,500	2,960	21,300	31,680	2,940	4,500	2,980	21,300	31,720
200,000.....	3,920	7,500	3,960	33,800	49,180	3,940	7,500	3,980	33,800	49,220
300,000.....	5,920	15,000	5,960	65,800	92,680	5,940	15,000	5,980	65,800	92,720
500,000.....	9,920	33,000	9,960	139,800	192,680	9,940	33,000	9,980	139,800	192,720
1,000,000.....	19,920	83,000	19,960	352,300	475,180	19,940	83,000	19,980	352,300	475,220
5,000,000.....	99,920	588,000	99,960	2,352,300	3,140,180	99,940	588,000	99,980	2,352,300	3,140,220

Editorial Observation

The Essential Tractor

A FARMER in central Ohio purchased a tractor during the past summer and already has found its many advantages. During the past fall he was able to plow with practically an inch of frost, which was impossible with horses. In this way it was possible to do fall plowing for the spring crop, which has not been done heretofore.

Here is another example from another farmer in Ohio: He purchased his first tractor last spring and reports a greatly improved corn crop over his neighbor's because of not only superior cultivation but earlier cultivation.

He has built two silos, which he attributes directly to the presence of the tractor. The tractor belt power was used for operating the corn cutter. Heretofore his stationary engine had not given satisfaction. He

hesitated depending on it but when he purchased the tractor he immediately saw his way clear to build his silos and handle the work in connection with them as it should be handled.

Already this farmer has sold three of his horses. He found them too expensive. He declares that grain raised on the ground required for the food of the horses will take care of the cost of fuel and tractor maintenance four times over.

If there are any tractors operating in your zone we suggest making a first-hand investigation of what they are doing. There may be some potential sales arguments such as these right at your front door and you are passing them up.

Exert that super-effort which the war demands and make similar investigations.

Courage

ATTENTION has been called more than once to the serious and conservative attitude noticeable at the automobile shows this year; to the tendency toward utility rather than luxury; the perfecting of existing types rather than the creation of new designs—in a word, the war spirit displayed by exhibitor and visitor alike. This was inevitable.

The motor industry is too much a part of the very life of modern civilization not to be among the first to feel and realize the tremendous importance of the crisis that now confronts the country and the world. The responsibility that rests upon car and engine in the winning of the war might well appall any but men of the strongest purpose.

But the lesson of the shows, the outstanding feature and the keynote, is courage. It must be admitted that for many reasons the industry has passed through a

period of fear and doubt—fear of drastic regulation by the government, fear of curtailment of materials, and doubt of the public's willingness, or even ability, to absorb the normal output of the factories. These things the shows have done much to dispel. We were all beginning to realize, individually, that they were groundless, but there is that in the encouragement of numbers which makes for strong conviction.

We know now how the other man feels and we are glad he feels as we do. If he sees that it is right and patriotic to increase his business and if he has the courage to act on his belief we also are strengthened in our own determination. Many men went to the show uncertain. They returned to their homes convinced. They know now what to do and why.

A serious, purposeful and patriotic temper underlies the American spirit. Its foundation is courage.

Trucks

THE tendency clearly shown at last year's shows to give more prominence to motor trucks is strikingly borne out this season at nearly all the important exhibitions. Of course the war is largely responsible for this, the truck having shown itself of such vast importance that our forces are literally dependent upon it for the very means of life—and of death. It was inevitable that the prominence forced upon it by the present necessity should place the truck more clearly than ever before in the public eye.

But it has done more than this. We have suddenly

realized that for the ordinary and daily uses of commerce the motor truck has not been used half enough; that there are fields yet untouched that can and must be covered.

Manufacturers and car dealers are now handling trucks in the same salesrooms with the most exclusive types of passenger cars. Automobile salons showing the latest limousines are also showing the latest trucks, and the public interest justifies it.

This is as it should be.

This, if ever, is the day of the truck.

What Others Think

THIS page is for the use of *MOTOR WORLD* readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Service Should Be Sold

Editor Motor World: All issues of Motor World are good; none bad, but some are better than others. For instance, Jan. 2 issue regarding service, and after reading dealers No. 4, 12 and 13, I could not or at least did not care to read any further.

Before I proceed I will state my position. I have been manager of our firm about 2 months. The firm has been in business 16 months, and in the 16 months we have given away a good many dollars in service and buying used cars (buying them is the proper name in most cases).

In September, 1917, our vice-president saw the light and he put the business on a strictly cash basis, discontinued free service and cut out buying second-hand cars. I understand they did not start the cash business in Chicago until October; at any rate we were the first to start it here, and since several others have dropped in line and I believe by spring you will see all dealers on a cash basis or out of business, and I think the same way about wild trades.

This letter is on service so I will get back on the subject. Section No. 5 of your service story states the custom of giving grease and oil free during the early days of ownership is simply a custom that has arisen because of the dealer's inability to offset the owner's belief that service is something for nothing.

We will sell all service an owner wants, but will not give it to him when we have to pay our mechanics good money for it. This free service is the fault of both manufacturers and dealers. First the manufacturers have smooth sailing, a strictly cash business, no trades, and they encourage the dealer to give service. One reason is because it does not come out of the manufacturer's pockets.

The dealer gives the service because he thinks the cars will stand up better and help him sell more cars; this may be true, but sell it instead of giving it away. If every dealer would sell service instead of giving it away they would sell as many cars.

There are a good many cars on the market that require a lot of work to keep them in running order, and if a dealer would keep them in repair for one year he would be out of business at the end of the year.

I figure that only about 25 per cent of

the strictly retail dealers have any more money than they did five years ago and the other 75 have less.

The three ways to help make money is, cash business, sell service and cut down trade allowances.—Holmes Automobile Co., Fred. E. Cannon, Manager, Champaign, Ill.

Boulder Accepts Our Suggestion

From Boulder, Col., comes another instance of Motor World's practical value to its readers. In our issue of Dec. 12 we published a suggested letter to customers on the subject of the cash basis

NOTICE TO AUTOMOBILE OWNERS

You wish to assist the business world, we are sure, in keeping things running on an even keel. This will be best for you, and for us, and for the nation as a whole.

If business can be kept going at its greatest efficiency prices will remain more stable, money will flow to and fro between buyers and sellers and business will run along in a pretty even way.

We have investigated our business from many angles. We have considered the advisability of raising prices, of changing our organization in various ways, and have concluded that the raising of prices is something we should not do except as a last resort.

We have found, however, that our expenses are greater than ever before and that we are working our capital to the limit. Adding capital would only serve to make our expenses more.

But we can make conditions much better if we may alter our credit business. If we may do without the accounting necessary when our sales are on credit it will mean a great deal to us in our effort to maintain our past service at present prices.

This is not a reflection on the class of credit we have had. It has been good and we have been glad to have it, but every time we charge up a dollar on our books it costs us money. Instead of asking you to pay higher prices we are going to ask you to pay cash at the time you buy.

Each garage will have on sale coupon books priced at \$10, \$25 and \$50 each, on which there will be a discount of 2 per cent at the time of sale of the coupons. This will be a considerable saving in the purchases of supplies.

Each garage owner has posted with one of the local banks a note of \$100.00, payable to the American Red Cross Society, in case of violation of the agreement to sell only for cash.

This new plan will become effective January 5th. We are sure you will appreciate our object and will be glad to co-operate with us.

We appreciate your patronage of the past and hope it will be continued.

W. S. WITHERS NEHEISEL'S SERVICE STATION WAYSIDE GARAGE W. L. COX & CO. COLORADO MOTOR & GARAGE CO. BOULDER RUBBER TIRE WORKS	HUBBIE AUTOMOBILE CO GORBUCH GARAGE JACK FAUR, JR. MOTOR INN BATES & ROBERTS DODGE BROS. GARAGE.
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and accompanied it with an article containing information of value and clear arguments in favor of its adoption. The following letter shows what this has led to in at least one instance:

Editor, Motor World:

The letter printed on page seven of the Dec. 12th issue of the Motor World gave us an idea of how to handle the credit we were extending, and, the idea being suggested to other dealers, whose names are attached to the inclosed, made it possible to run the inclosed notice in our local papers and have the inclosed letter printed, which was given or sent to all our customers and was met with approval by the general public and customers.

We wish to thank you for the idea given and to let you know what benefit we have derived from the Motor World.

Hoping that we may in the future still have suggestions from your magazine, we wish to remain, Neisheisel Service Station, William Neisheisel.

First, a co-operative advertising campaign was started, the advertisements bearing the names of the twelve garages participating. The first of these, here shown, was a reprint of our letter with such additions as the local situation required.

Following up the advertisement, a form letter embracing the same facts was sent by each garage to its individual customers.

Free Service Undesirable

Editor Motor World: I was much interested in the letters that appeared in your issue of Jan. 2. For our part, we feel that this matter of service has been abused to such an extent that something radical is necessary to straighten out the situation, which will continue to be a burden so long as it is handled as in the past.

There is no question but that an owner is entitled to a reasonable amount of service, but this should be clearly defined to mean merely those adjustments which might be necessary on a new car, not due to misuse or wear; in other words, it is our opinion that the service should consist of those attentions that might be required on a new car to bring it to proper running shape, and should carry with it the necessary instructions to enable the owner to properly take care of his car himself, and should not be specified in a given number of hours that may be used at the convenience of the owner for any kind of work that he might desire done.

Experience shows that oftentimes just before the expiration of his book or card the automobile is brought into the service station for work whether needed or not, merely to use up the time remaining in the book, and for that reason it fails in its purpose, for it entails work that is in reality not required.

Therefore, as stated previously, if some universal definition of service could be determined it would tend to straighten out the situation which has in the past been much abused. For our part, we believe that sales should be made strictly on the guarantee of the factory building the car, and all work, aside from minor adjustments indicated above, should be charged for, and service should be represented by the facilities provided to take care of such work desired by the owner most economically, both in time and expense.—Vesper Buick Auto Company, St. Louis, F. W. A. Vesper, President.

What do you think?

Write and tell us.

The RETAIL NEWS

SOUTHWEST

Gordon Addle, Del Rio, Tex., has sold his garage to the Border Tire Sales Co.

The Midland Storage Battery Co., Midland, Tex., has moved to larger quarters in the Spaulding Garage building.

W. A. Bergfield, Sequin, Tex., has bought the Quick Service Garage from Hugo Troell. The building will be remodeled and new machinery and equipment installed.

The Motor Car Supply Co., San Antonio, has moved into larger quarters at 205 East Travis Street.

Johnstown Motor Co., San Antonio, has moved to new quarters on Avenue C.

Sparks Bros.' Garage, Waco, Tex., has been sold to C. E. and T. C. Sparks.

Central Texas Automobile Co., Waxahachie, Tex., has bought the Sims-Thompson garage.

Motor Supply Co., Wichita Falls, Tex., has moved into new quarters at Indiana and Sixth Streets.

A. G. Vleck, Ellsworth, Kan., has bought the garage of Wm. Bender.

J. D. Jones, Kingman, Kan., has bought the Walter Auto Co. garage.

Wilmoth and Christian, Colony, Kan., have bought the garage of C. H. Ferguson.

Roy C. Fowler, Lucas, Kan., has bought the garage of Thorp & Campbell.

Quincy Smith, Osborne, Kan., has bought the Stone Garage.

McKay & Smith, Pittsburgh, Kan., have sold their garage to Benoist and Penlmorey.

Wm. Johnson, Stafford, Kan., has bought L. Jolly's garage.

B. C. Johnson and Elmer Curnult, Garnett, Kan., have built the K-T Service station.

Talley Auto Co., Clinton, Mo., is planning to remodel the Hunt Bldg., which it will use as headquarters.

Samuel Bysart, Graham, Mo., has bought the garage of W. C. Wilson.

Ulys Stark, Maysville, Mo., has bought the garage of George Fouts.

L. E. Finnell, Paris, Mo., has bought the garage of C. D. Peck.

Marmon Automobile Co., Joplin, has opened salesrooms.

The Auto-torium, St. Joseph, Mo., will be under the management of F. H. Chambers, secretary and treasurer of the company. The plant will cost \$100,000.

Rasmussen & Dorn have opened a Dodge Brothers service station at 407 West Washington Street, Phoenix, Ariz.

Stapleton Motor Co., Oklahoma City, will move shortly to its new home.

W. Crane, Chandler, Okla., has bought his partner's interest in the Crane & Anderson Garage.

H. J. Philbrook, Henryetta, Okla., has bought the accessories stock and leased the garage of L. L. Sullins.

N. Wasson Vulcanizing Plant, Duncan, Okla., has moved to new quarters in the Buckholtz building.

W. H. Shafer, Woodward, Okla., has bought the Motor Inn from Frank Vaughn.

Roger Chastain, Seminole, Okla., has bought the Ford Garage.

Fred Arterberry and S. J. Turk, Claremore, Okla., under the style Motor Supply Co., have opened a repairshop.

O. O. Teeter, Waurika, Okla., has bought an interest in the Mize Motor Co. The firm will be styled Mize-Teeter Motor Co.

Hester & Reynolds, Poteau, Okla., have bought the LeFlore County Auto Co.

W. R. Crowley, Mangum, Okla., has bought out his partner in the garage firm of Henderson & Crowley.

Dellinger-Samuel Motor Co., Oklahoma City, which was recently organized, will occupy quarters at 3 West Main St. J. P. Dellinger, W. R. Samuel and E. R. Selby are in the company.

Lynch Tire Supply Co., Tulsa, Okla., has opened quarters there.

Leon Polk, Sulphur, Okla., has bought the garage of J. O. Curry.

Wilson & Souigny, Ponca City, Okla., have formed a partnership and opened salesrooms.

J. R. Saye, Waurika, Okla., has bought the Narrow Gauge Garage from G. Y. Henderson.

Miami Motor Co., Miami, Okla., has bought the Judd Bros. garage.

R. A. Cook, Little Rock, has bought the interests of W. J. Johnston in the Cook-Johnston Auto Co. The firm will be styled Cook Automobile Co.

NEW GARAGES

Cromb & Merrill.....Wa-Keeney, Kan.
Maupin & Aksamit.....Lucas, Kan.
D. B. Teall.....El Dorado
L. T. Seamland.....Holland, Kan.
The Phillips Garage Co.....Gridley, Kan.
Geo. S. Scantlin.....Pratt, Kan.
Ed Hyatt.....Conway Springs, Kan.
Thos. Menees.....Clinton, Mo.
Maughs & Conner.....Fulton, Mo.
N. Ford & Son.....La Belle, Mo.
E. M. Blue.....Cherokee, Okla.
Tri State Garage Co.....Weleetka, Okla.
Tom Cooper.....Ardmore, Okla.
Liberty Garage Co.....Oklahoma City
Frank Clar.....Perlmans, Okla.
Hoeffs & Humphries.....Pecos, Tex.

MIDDLEWEST

Langlade Motor Co., Antigo, Wis., has been sold to Othersall & Sorenson and will be consolidated with the Langlade Garage.

J. H. Ortscheld & Co., Cuba City, Wis., has been organized by J. H. Ortscheld, Robert H. Osborne and Joseph J. Coulthard, to take over the business of the Cuba City Garage & Vulcanizing Works.

A. C. Russell and Henry Kohnke, Augusta, Wis., have formed a partnership under the style Overland Automobile Agency, to deal in Overland and Willys-Knight cars. For the present a salesroom and service station will be operated in the Artis Garage, Augusta.

John J. Clements, Longview, Ill., has purchased the garage of C. A. Hand. Clements was formerly proprietor of a garage at Broadlands.

Lee Tire & Supply Co., Grand Rapids, has moved to larger quarters at 30 Ionia Avenue, S. W.

J. J. O'Donnell and V. H. Smith, Grand Rapids, have bought the Riekse Auto Co. from G. C. Riekse, and will sell the Elcar.

L. A. Walker, Heyworth, Ill., will open a motor car and farm tractor sales agency and garage at Libertyville, Ill. He will be Ford distributor in Lake County.

NEW GARAGES

Standard Garage.....320 Erie Street, Toledo
Peter H. Burbach.....West Allis, Wis.
Stratford Automobile Co.....Stratford, Wis.
Cobb Automobile Co (addition).....Cobb, Wis.
Henry W. Melsner.....Manitowoc, Wis.
E. V. Kirby.....Rantoul, Ill.
J. J. Clements.....Longview, Ill.
Peter Hendricks.....Paxton, Ill.
Tacoma Garage Co.....Findlay, Ohio
Sandusky Buick Co.....Sandusky

NORTHWEST

City Garage, Gilbert, Minn., has been sold to F. J. Heitkemper, Phillips, Wis.

L. E. McGrew, Darwin, Minn., has bought the supply stock of W. R. Berens, Litchfield.

F. Lantz, Swanville, Minn., has leased the A. Mielke Garage.

Alfred Salmund, Sauk Center, Minn., has bought the garage of Salmund & O'Gar.

Heinck Auto Co., Winthrop, Minn., has bought the Norman Garage from the Wild Rose Realty Co.

Andrew Stievers, Wabash, Minn., has bought a half interest in the Frank Ebner garage.

Fred Bishalle, Tyler, Minn., has bought the South Side Garage from Ed. Mitchell.

Carl Hoerr, Le Sueur, Minn., has bought the interest of C. A. Nelson, his partner, in the Le Sueur Garage.

Herman Boeck, Westbrook, Minn., has bought the Grant Ross Garage.

Oscar and Elmer Hillestad, Nassau, Minn., has bought the Otto Froemming Garage.

L. L. Wolfer, Jamestown, N. D., has bought the Motor Inn from L. L. Wolfer.

Sheldon Garage, Sheldon, N. D., has been sold to Earl M. Johnson, Gibbon, Minn.

J. W. Lyons, Grand Forks, N. D., has bought the interest of L. A. Warnken in the Lyons Auto Co.

Fairmount Motor Co., Fairmount, N. D., has leased the Fairmount Garage.

Mowbray Garage, Wales, N. D., has been sold to Otto Platz, Calvin, N. D.

Charles Royer, Chamberlain, S. D., has bought the Gilbert interest in the Smith & Gilbert Garage.

Oscar McDonald, Alder, Mont., has bought the Steve McDonald interest in the Alder garage.

Missoula Motor Co., Missoula, Mont., L. H. Barton manager, has taken over the Studebaker agency.

G. E. Miller and Wright Harvey, Mussellshell, Mont., have bought the H. E. Martin Garage.

Guy Romine, Chadron, Neb., has bought the garage of Frank Plummer, which will now be styled City Garage.

B. L. Mills, Thedford, Neb., has bought the garage of S. C. Hyndshaw.

H. W. Buller, Fremont, Neb., has bought the repairshop of E. L. Whitcomb.

C. L. Columbia, Guide Rock, Neb., has bought the repairshop of Konzack Bros.

Theodore Burdoff, Papillion, Neb., has opened a repairshop.

Alvin Haggstrom, St. Paul, Neb., has bought the Corner Garage.

R. T. Duman, Hartington, Neb., has bought the Elite Garage.

M. Hutchins, Sunol, Neb., has sold his garage.

U. S. Rubber Co., Omaha, has moved its office to a new building at Ninth and Far-nam streets.

Adair-Lee Rubber Co., Omaha, has opened a tire station on Auto Row. A complete vulcanizing plant is being installed.

Carl Holcomb, Broken Bow, Neb., has bought a half interest in the Broken Bow Garage.

C. B. Mitchell and Joseph Barada, Auburn, Neb., have bought the Dustin garage.

Thomas Reed, Holbrook, Neb., has bought the West garage from H. G. Miller.

A. T. Dunman, Hartington, Neb., has bought the Elite Garage.

W. E. Wilson, Maxwell, Neb., has bought the interest of his partner, Chester Cohn, in the Cohn & Wilson Garage.

J. W. McHattan, Chappell, Neb., has assumed the managership of the Pioneer Garage.

W. F. Van Pelt, Marion, Neb., has bought the interest of John Newberry in the Service Garage.

Schiller and Elsmann, Kalona, Iowa, have rented their garage to J. B. Yoder.

Albert McNabb, Carroll, Iowa, has remodeled his garage.

Kohlhass Bros., Algona, Iowa, has purchased the garage department of Willhite Brothers and will have the Buick agency.

William Gullick, Sloan, Iowa, has sold his garage to F. A. Woods and Fred McMinder.

Smitn Motor Co., Newton, Iowa, has purchased the Colfax Auto Co. and will operate it as a branch.

Johnson Bros., Grand Junction, Iowa, have bought the D. Sullivan Garage at Mt. Ayr, Iowa.

New Garages

C. P. WaterousBreckenridge, Minn.
Frank Grouws (addition)...Elizabeth, Minn.
B. L. Lynch.....Minot, N. D.
Motor Service Co.....Lidgerwood, N. D.
Oukrop & Funk.....Dickinson, N. D.
Hicks & Helm.....Java, S. D.
Harms-Nielson Motor Co., Sioux Falls, S. D.
L. J. Case.....Langford, S. D.
Kindwell Garage.....Storm Lake, Iowa.
Estes & Co.Leon, Iowa
Brader Auto Co.....Storm Lake, Iowa
Farmers' Garage Co.Fremont, Neb.
M. A. PeatroskyWest Point, Neb.

MOUNTAIN.

Geo. McClure has bought the Paxton Garage, Center, Colo.

H. M. Graves has opened an accessory and tire shop at Wakenburg, Colo.

The King Motor Co., Englewood, Colo., has bought the Ford agency and garage.

Lewis Tire Co., Denver, has moved to larger quarters at 1535 Broadway.

The Englewood Garage, Englewood, Colo., has been bought by O. I. Cole.

Moore-Hardy Motor Co., Denver, has moved to larger quarters at 1718 Broadway.

Jackson Motors Co., Denver, has opened a Jackson and Regal agency at 1512 Broadway.

New Garages

Eagle GarageDenver
Progressive Garage (addition.)
Del Norte, Colo.
Monte Vista Motor Co. (addition.)
Monte Vista, Colo.
Seiters Garage (addition)...Alamosa, Colo.
Oldam Bros. Garage.....La Juanita, Colo.
Marshall Bros.....Las Animas, Colo.

The Wyckoff Motor Sales Co., Pittsburgh, for many years distributor of the Chalmers and McFarlane in western Pennsylvania and West Virginia, has discontinued the Chalmers line. The company will take on a line of trucks.

New Garages

East 43d Street Garage
231 East 43rd Street, New York.

PACIFIC COAST

P. M. Quilen has moved his supply store to 211 Third Street, Napa, Cal.

D. R. Bolton has moved the Steam Vulcanizing Works to 55 North Main Street, Napa, Cal.

Sparks & Murphy, Petaluma, Cal., have added a battery department.

Violetti & Vestal will succeed Cordingley & Violetti Bros. as agents for the Hudson and Dodge Brothers car and the Republic truck.

R. A. Schleffer, Ford agent at Healdsburg, Cal., has erected a new building, and will use the adjoining lot to accommodate automobile camping parties.

I. E. Ray has purchased the Central Garage, Healdsburg, Cal., from Otto Hildebrand.

Roy O. Hurst has opened the Battery Shop, Healdsburg, Cal., as a branch of Santa Rosa Battery Shop.

H. B. Cotte has installed a complete vulcanizing plant in the Healdsburg Garage, Healdsburg, Cal.

J. G. Barrett & H. H. Cook have opened the Rose City Auto Repairshop at 9 Main Street, Santa Rosa, Cal., and will specialize on light cars.

Louis Hansen has opened the Auto Laundry at Third Street, Santa Rosa, Cal.

Girrens Bros. have remodeled their garage on Main Street, Santa Rosa, Cal.

Houts-Moulton Overland Co., Santa Rosa, Cal., has opened salesrooms and will handle the Franklin and Overland.

W. E. Dorman has become sole owner of the Santa Rosa Garage, Santa Rosa, Cal.

The Battery Shop, Santa Rosa, Cal., has moved to larger quarters at 414 Mendocino Avenue, Santa Rosa, Cal.

F. W. Craver is improving his garage at Santa Rosa, Cal.

Rose's Garage, Niles, Cal., has installed a vulcanizing plant.

A. Lydiken has opened the Steam Vulcanizing Works, Livermore, Cal.

C. M. Steves, Portland, has opened a Scripps-Booth agency. Associated with him are Cliff Durant and Norman de Vaux.

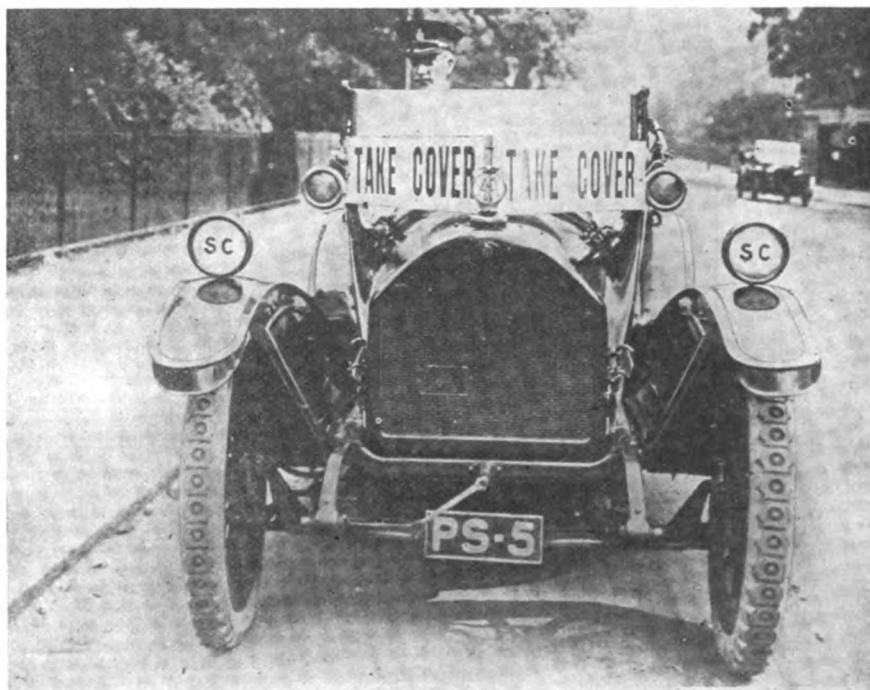
G. G. Gerber, Portland, has opened a parts shop at 53 Ninth Street.

R. W. Lee and F. C. Laster, Portland, have opened an electrical and service shop at Sixth and Burnside Streets.

New Garages

Smith & FellersSebastopol, Cal.
Garry's Garage.....Sonoma, Cal.
Mallory Bros.Santa Rosa, Cal.
Service GarageNapa, Cal.
Owl GarageSeattle
McEldowney's Garage (addition)....Tacoma
Warren Bros (addition)...Wenatchee, Wash.
M. GrinsteadBend, Ore.
E. F. HugElgin, Ore.
White Motor Co.....Seattle
Twin City Auto Co.....Morton, Wash.
O. P. Halligan.....Tacoma
Mt. Vernon Auto Co.....Mt. Vernon, Wash.
H. M. Backus.....Seattle
E. F. Hug.....Elgin, Ore.
E. B. Clark.....Hood River, Ore.
Antioch Garage & Machine Shop
Antioch, Cal.
W. W. Garage.....Pittsburgh, Cal.

Overland Car Gives Warning of London Air Raids



HERE is an Overland car that has played an important part in London air raids. It is one of the automobiles used by the constabulary of England's capital to warn the populace of impending danger from Teuton Zepps or aeroplanes. Each car is equipped with big signs, which are illuminated by the car's side lights so that they can be easily seen by the public. The signs are reversible and when danger has passed the "Take Cover" signs on the front and rear are turned back and "All Clear" is shown.

Accessories

U. S. E. Combination Shock Eliminator and Buffer

The impact of collision is absorbed through the medium of the shock eliminator springs in addition to the cushioning action of the spring buffer, by means of

felloe and held in place by the lug plates. It does not interfere with the removal of the rim or of the wheel from the axle. The inner half is held in place by the wheel hub bolts. A small sliding door gives access to the tire air valve. Type No. 2 is for use

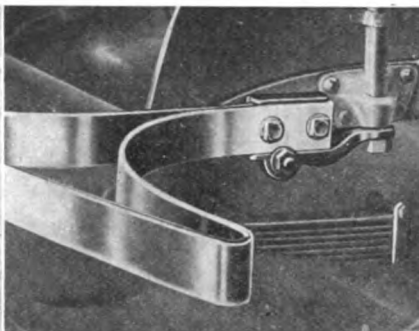
U. S. E. Spring Bumper Bracket

This bracket is adapted to Cadillac cars. It uses the fender prop iron as a positive means of securing a drop forged steel bracket to the chassis frame, together with a U-bolt

connections, and, being pivoted, may be adjusted to any frame angle. This support fitting is furnished for cars carrying one or two tires.—L. P. Halladay Co., Streator, Ill.

Delta Thousand-Foot Spotlight

This windshield spotlight has a focusing arrangement by means of which the light may be instantly spread from a small spot to a width of sixty feet. A diffused light may be thrown straight up, down, to the sides or the rear while driving. The lamp used is a 21 candle power nitrogen bulb. The device comprises a headlight, battery case, cable, switch and universal bracket complete ready for attachment to any car. It can be



a connection with the top of the load spring through a connecting rod coupled to the bumper arms.—Universal Shock Eliminator, Inc., 6 and 8 W. 62nd St., New York.

Schutte Wheel Discs

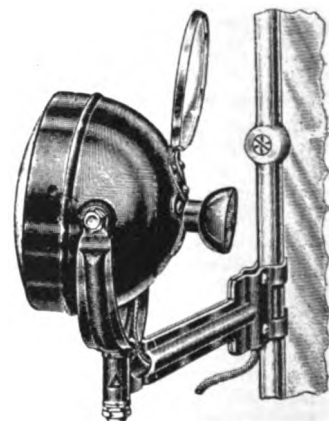
By the use of these discs a wood or wire wheel is converted into a steel disc wheel. They are made in three types. No. 1 is designed for use on any style

on any wire wheel. The inner half is in two sections that it may fit under the flange of the wheel at the hub, and the outer half comes in contact with the wheel at the felloe only. The two halves are held together by six bolts extending through the wheel. Type No. 3 is for wire wheels with large hub caps and makes use of the locking ring to hold the disc in place. Otherwise this is similar to type 2. Unless otherwise specified the whole disc is made of 22 gauge

extending through the frame, thus minimizing any tendency to work loose and become noisy. The inner ring of spring steel supports the front bar at its weakest point and offers additional resistance to collision. Price, \$15.—Universal Shock Eliminator, Inc., 6 and 8 W. 62nd St., New York.

Halladay Standardized Bumper Unit

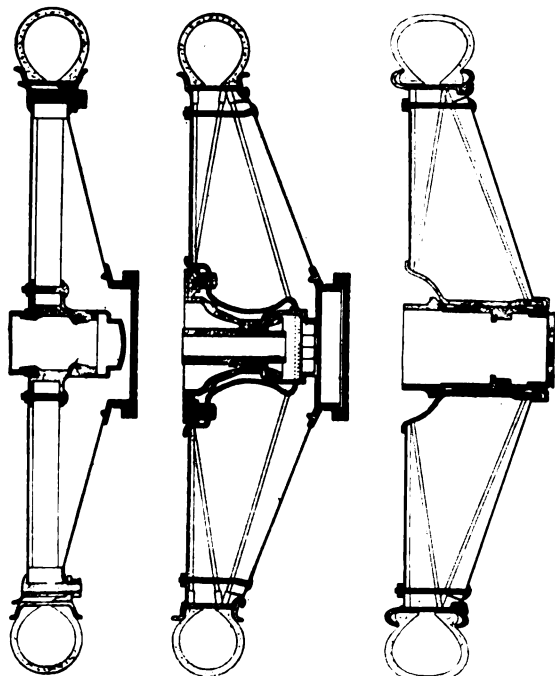
This consists of four fittings, three frame clamps and a bar support. One of these clamps, fitting "A," is designed for use on any frame the outside of which is exposed for a distance of four inches or more back of the spring connections, regardless of splash aprons on the outside. Fitting "B" is an under-thrust support and may be used on any frame on which there is room for a single clip, directly back of the spring con-



nections. It has a 3 3/4 in. lens and silvered parabolic reflector. It runs on two number 6 dry batteries. Price, \$6.50. With mirror attachment, \$7.00.—Delta Electric Co., Marion, Ind.

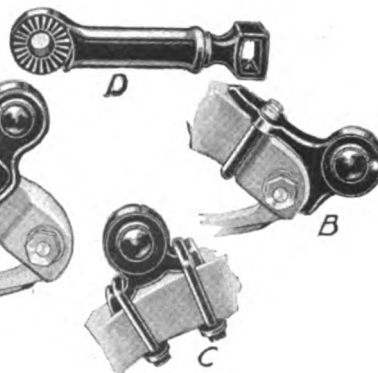
Kant-Klog Primer

Consists of a screw terminating in a mushroom-shaped head. A few turns draws the head to a close seat which prevents the collection of carbon. There is ample clearance for a free flow



of gasoline when priming. Variations of the standard are designed for different types of motors.—Taylor Machine Co., Cleveland, Ohio.

of wood wheel with either demountable or clincher rim. The two halves of the disc are separate, the outer coming in contact with the wheel only at the



steel with aluminum base and hub cap, but a heavier gauge is furnished if desired.—Charles Schutte Body Co., Lancaster, Pa.



nections. The third fitting, "C," is primarily designed as a rear fitting on 3/4 elliptic springs and rear frame extensions. The bar support, "D," fits all these frame

How Much Does It Cost To Drive-Away Cars?

By S. T. Williams

THE constantly increasing number of drive-aways are a result of war conditions, and because of freight car congestion are bound to increase in the future.

Manufacturers, dealers and owners are all coming to realize that the use of freight cars to carry a product that is in itself a prime mover is almost non-patriotic.

The Government, even, is delivering its trucks in this manner, and is setting an example that the manufacturer and dealer should be willing to follow.

There are many angles to the drive-away situation, and the following are a few of the variables the dealers must consider in preparing to bring his cars home in this manner.

Distance Most Important

The first and greatest of these is the distance. The next is the cost, as compared to the freight charges and the time by freight, if freight shipments were possible. Road conditions also must be considered.

The consensus of opinion on the part of manufacturers and dealers that have conducted drive-aways is that 300 miles is a practical limit to which cars may be satisfactorily driven. Drive-aways have covered 1300 miles and more, and there is in fact no limit except the ocean itself to which cars can be so delivered.

But above 300 miles the cost of the drive-away rapidly increases over the corresponding freight cost, and in many cases becomes over 100 per cent greater. Besides, the wear on the tires, depreciation of finish, etc., all tend to decrease the sales value of the car after the 300-mile mark is passed.

Herewith is a table showing the actual costs of a series of drive-aways that have been made in the past season, as compared with the corresponding cost and time by freight.

Many factories provide drive away crews for the purpose of delivering cars to dealers, but in general the dealer himself will have to provide such a crew. This is usually not difficult.

Tremain & Rankin Auto Co., Oakland distributor, Fort Dodge, Iowa,

use their own men from the shop and part of their sales force. During the summer a number of high school boys were picked up and were willing to drive the cars back for little more

Typical Drive-away Routes

From LANSING, MICH. INTERMEDIATE POINTS Kalamazoo Paw Paw, Mich. Benton Harbor, Mich. St. Joseph, Mich. Gary, Ind. Chicago Waukegan, Ill. Racine Kenosha	To MILWAUKEE
From DETROIT INTERMEDIATE POINTS Pontiac Through Illinois Clinton, Ia. Cedar Rapids, Ia. Waterloo, Ia.	To FORT DODGE, IA.
From PONTIAC INTERMEDIATE POINTS Detroit Toledo Cleveland	To DES MOINES
From LANSING INTERMEDIATE POINTS Bever Falls, Pa. Pittsburgh Greensburg, Pa. Everitt, Pa. Bedford, Pa. McConnellsburg, Pa. Chambersburg, Pa. Hagerstown, Md. Frederick, Md.	To WASHINGTON
From DETROIT INTERMEDIATE POINTS Ann Arbor, Mich. Clinton, Mich. South Bend, Ind. (Lincoln Highway) Nevada, Ia. (Jefferson Highway)	To BOSTON

than expenses. This firm has also found that the most successful method was to take the prospective owner right to the factory and permit him to drive his own car home. The

owner has an outing and any possible objection to a car delivered in this manner is absolutely removed.

The Frint Motor Car Co., Oldsmobile distributor, Milwaukee, pays the expenses of dealers throughout the state to drive their cars home. The District Oakland Co., Washington, D. C., have found that the most satisfactory method was to procure first-class drivers from the local Chauffeurs' Club, and another Oakland distributor counts on picking up enough drivers in the factory.

Standard Rules for Drivers

Practically all dealers conducting drive-aways issue the same instructions to drivers. The driver in charge of the party is placed at the head of the procession and a mechanic is placed at the rear. Those between are instructed to keep in sight of the car ahead and under no conditions to race. Upon the slightest indication of trouble the disabled car should drop out of line and if necessary wait for the mechanic at the rear, the others continuing on their way.

On the first day's run the cars should not exceed 15 to 20 miles per this may be stepped up to from 20 to hour at any time; on the second day 25 miles an hour, as the upper limit, and after that speeds from 30 to 35 miles per hour are permissible.

In general, an average of 20 miles per hour, or 120 miles per day is possible, but this, of course, depends largely upon road conditions.

Several large dealers state that not more than five cars should be driven away at any one time, as numbers

(Continued on page 63)

Cost of Freight Shipments and Drive-aways Compared

Car	From	To	Miles	Time	Cost per		Cost by Time by	
					Car	Freight	Freight	Freight
Oakland	Pontiac	Washington, D. C.	600	5 days	\$70	\$35		
Oakland	Pontiac	Fort Dodge, Ia.	450	3 days	Cheaper than by fr'ght			
Paige	Detroit	Indianapolis, Ind.	380	19 hrs.	\$32	\$25.50	5 days	
Oakland	Pontiac	Des Moines, Ia.	450		\$2 car less than freight			
Briscoe	Jackson	Chicago, Ill.	235	12 hrs.	\$14.65	\$15.06	4-5 d.	
Briscoe	Jackson	Springfield, Ohio	250	12 hrs.	16.90	16.80	3-7 "	
Briscoe	Jackson	Pittsburgh, Pa.	400	2 days	24.00	17.00	7 d. up	
Briscoe	Jackson	St. Augustine, Fla.	1300	6 days	73.75	45.00	2 w. up	

Making One Truck Carry Another

How One Dealer Solved the Drive-Away Problem

By B. S. Brown

KANSAS CITY, Feb. 1—A. H. Hill, Republic distributor in southwestern Oklahoma, needed, in Oklahoma, some trucks and trailers that were in Kansas City.

He came to Kansas City and got them. And here is the way he cleverly and effectively overcame the various obstacles that successively stood in the way.

Hill needed eight trucks, three for immediate delivery to customers, five for stock. He had to have three 2-ton, two 1½-ton, two 1-ton and a ¾-ton special, also he had to have two highway trailers.

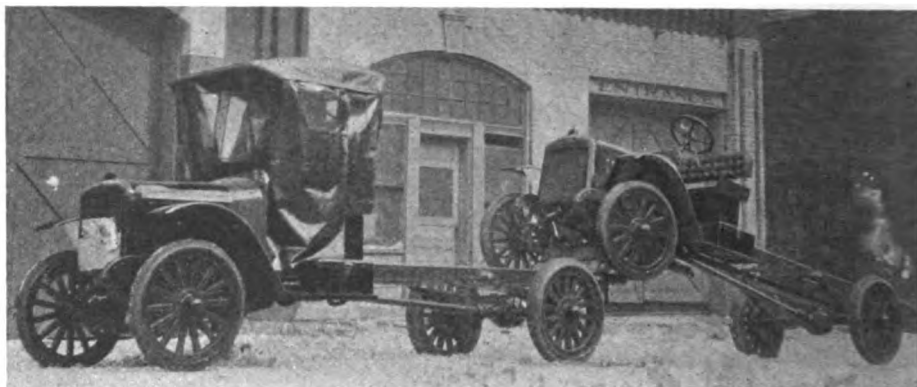
The first problem was as to drivers. For eight trucks eight drivers would be needed, whose passage must be paid, one method or another, on an idle trip between Kansas City and Chickasha.

There was also the problem of getting these trucks through in uncertain weather. This was in the midst of the period of below-zero temperatures, the roads were blocked with snow drifts. If the cold continued, the roads would be difficult enough, both from the standpoint of bucking the drifts and from the standpoint of holding traction on the snow. Mr. Hill did not have time to gather a load of freight for these trucks to Oklahoma—and he thought, any way, that there might be a better recourse.

Careful Investigation First

He had had a great deal of experience in drive-outs of passenger cars, and in delivery of trucks in his own community. With his own experience and information he came to Kansas City and conferred with H. M. Genung, secretary of the H. A. Dougherty Motor Co., Republic distributor for the territory, and Sam Simon, manager of the company's body works here. Simon "turned him loose" in the plant, and here is what he did.

First, he assigned the trucks their places in the caravan. There was to be a minimum of wasted energy and carrying capacity, a minimum of drivers, a maximum of traction for the driving wheels of the trucks that were doing the work. He assigned one of the ton trucks to one of the 2-ton trucks and the ¾-ton special to another of the larger vehicles. The third 2-ton truck was to carry the two highway trailers. One of the ton trucks was to be used as the "supply wagon" for tools and some small accessories.



How Hill made one truck carry half of another, the two rear wheels of the second acting like a trailer. Have you read this good story?

The loading of the smaller trucks on the large ones was simple enough. Oak beams 2 x 8, extending beyond the rear of the carrier, set edgewise on the frame of a large truck, securely fastened to the frame with U bolts, supported the smaller truck, the frame of which was also bolted to the beam. Cross wires to the lower truck braced the load from racking. The cab of the load set snugly against the cab of the carrier.

Another Knot Untied

The 1½-ton trucks presented a different problem. One of these couldn't carry the other—so one was made to carry half of the other! The front of the 1½-ton truck was mounted on the rear axle of the carrier, the rear wheels of the load trailing. This provided a sufficient load for the carrier to provide traction, the "passenger" carrying part of its load itself.

The mounting of the front end of one truck on the rear of another was not, however, as simple as it might sound. Provision had to be made for trailing, turning corners, careening, as well as for avoiding incidental marring or damage to either. Under Hill's direction the following arrangement was effected:

A 4 x 4 oak piece was prepared to lie on the frame of the carrier truck, Eight or 10 in. of each end of this piece was rounded to roll on the frame. U bolts, the loop engaging the rounded ends, secured this oak piece to the frame, only one hole having to be cut in each side for the insertion of the arms of the bolt, the piece being so located that frame holes already there could be utilized. Another heavy piece of oak, shorter, was slightly curved lengthwise on one side, the ends being perhaps ½ in. less in diameter than the center. A hole was bored in the side of this piece that had been rounded—bored in the side that was to rest on the "axle" already described as bolted to the frame of the carrier truck.

There was a corresponding hole in the

"axle." A king bolt in these holes provided the physical connection. Both pieces of oak were re-enforced, around the holes, with bolts to prevent splitting. The front axle of the rear truck was securely fastened to the bolster.

The wooden "axle" rolled as expected when the comparative elevations of the two trucks varied. The bolster turned on the axle when the direction of travel was changed. And careening was taken care of by the curve provided on the side of the bolster resting on the axle.

Hill had brought two men with him from Oklahoma to help with the driving, and secured the others in Kansas City. One of these Oklahomans was B. H. Houts, special repair service man for Hill's distributing agency at Chickasha. The other was F. R. Reinhart, who, with a Republic 1-ton truck, had made a Liberty bond tour of 750 miles in 5 days, keeping pace with passenger cars, making a record of not a single item of trouble on his truck.

Temperature Below Zero

The drive-out left the Republic branch at Seventeenth and McGee Streets, Kansas City, at 3 o'clock Tuesday afternoon, Jan. 15, with the temperature a little above zero, snow drifts on all roads. They followed the Santa Fe Trail, over which between Wichita and Chickasha Mr. Hill had traveled many times. They ran into snow drifts in many places, though often finding the worst of the drifts already broken by others.

There was practically no "real" trouble on the entire trip. There was no trouble out of which Hill and his assistants did not extricate themselves without calling for outside aid. One of the most important accessories taken along was a towline, which once or twice was snapped on to the 2-ton that carried the trailers, and helped the 1½-ton with its trailing sister up a hill. Each working truck had heavy chains on wheels.

The distance between Kansas City and Chickasha is 500 miles.

First Class AA Military Trucks Nearly Ready

*Will Be Used in Many Government Departments
and For Postal Work as Well*

(Look at the pictures on the following pages)

THE first four experimental models of the Class AA $\frac{3}{4}$ -ton trucks are practically complete. Designed under the supervision of the Quartermaster's Corps, they are destined to play perhaps the greatest part in all the work of our standardized war vehicles for the reason that they will be purchased in great numbers, and will probably be used not only by the Quartermaster Corps but also for the Navy Department, Marine, Signal and Medical Corps, and the Post Office Department.

All these departments were considered in the design of the vehicle, which in so far as possible include provisions for the particular class of work which must be performed by each of the departments.

Although the Quartermaster Corps will use a large number of the trucks as soon as they have passed through the preliminary road test, it is expected that the Medical Corps will require at least 3500 for immediate service as ambulances. It is likely several thousand will be purchased during this year and put into service over the 4000 miles of new parcel-post routes just laid out from Maine to Louisiana by the Post Office Department.

The fact that the chassis will serve as an ambulance perhaps affected its design to a greater extent than any other department. It was because of the fact that they will be used as ambulances that the vehicle was provided with a torque arm and radius rods notwithstanding the fact that the heavier Class A and Class B trucks both employ Hotchkiss final drive in which the torque and propulsion are taken through the rear springs.

Easy Riding a Prime Requisite

For ambulance work easy riding qualities are one of the prime requisites, and it was considered advisable in this service to make the springs carry only the body and the live load instead of both the driving and propulsive strains. The use of the radius rods and torque arm makes for a slightly heavier and more costly construction, but when the lives of our men are in the balance these two elements are secondary in consideration. These details have not been finally settled.

As previously told, the trucks were assembled by the Reo Motor Car Co., Lansing; Federal Motor Truck Co., Detroit; Maxwell Motor Car Co., Detroit, and the Willys-Overland Co., Toledo. The fifth truck, which will be assembled later in Washington, as a check against the design, has not yet been started.

The progress of the work at the four

plants was about the same. The vehicles were originally scheduled to be completed Jan. 15, but this was not possible because of unavoidable delays.

The Federal and Reo companies received their orders from the Government to begin the construction of their trucks Dec. 19, 1917, while the Willys-Overland Co. received its order on Dec. 24. The Maxwell company was the last to get its word to go ahead, receiving its order on Jan. 7.

The Federal company received the engine, springs, frame and clutch on Jan. 2, and immediately began to assemble the various component parts. With the exception of the front and rear axles its job was virtually completed on Jan. 8. The Reo company went to work on much the same schedule and completed its truck as far as possible at the same time.

The Willys-Overland company received its engine from the Northway Motor Corp. on Jan. 3, together with the frame parts from the Reo company and the clutch assembly from the Detroit Gear & Machine Co. The steering assembly arrived on the day following and the Willard storage battery and muffler on Jan. 8. The wood wheels, transmission and radiator, the latter from the Federal Motor Truck Co., were received on Jan. 10. The starting motor, fenders, hood, tool box and universal joints arrived on Jan. 11, and the dash, instrument board and fittings on Jan. 15. Actual assembly was begun on Jan. 16, and was finished as far as possible on Jan. 24, with the exception of the front and rear axles.

The Maxwell company started the assembly of its job on Jan. 11, the date on which the frame arrived, and finished the vehicle on Jan. 24, with the exception of both sets of axles. The delay in the delivery of the axles was because they required much new die work.

All of the principal component parts entering into the construction of the vehicle were ordered from the parts makers by the Government.

The mechanical features of the truck have already been explained in detail in these columns. It will be noticed that the engine is provided with detachable cylinder heads and with the dual-ignition system consisting of both a magneto and generator as followed on both the previous Class A and Class B trucks. It differs from both of the latter in that it is equipped with an electric starter. It has, however, many of the characteristics of the Class A and B engines, including the hot-spot manifold and a similar mounting of the distributor, water pump and magneto on the left side of

the engine looking toward the front and the governor and generator on the right side.

Another unusual feature of the engine is that the crankcase is so designed that cylinders of $3\frac{1}{4}$ -in. bore by 5-in. stroke are interchangeable with the 4 by 5-in. cylinders now fitted. The purpose of this construction is to enable the Post Office Department to use a slightly smaller engine, as the 42 hp. of the 4 by 5 cylinders is considered too large for ordinary post office work. It may be said in this connection that the undefined rumor to the effect that the Post Office Department will not use any of the standardized war trucks certainly does not apply, at least to the Class AA job, since the post office officials and engineers were considered in its design and their recommendations incorporated into the construction laid out.

Aside from the large component parts which were shipped to each of the assemblies by the parts concerns, each assembler furnished a large number of small units such as the brake-rod assembly, clutch-pedal assembly, the fabric universal joint spiders, spring bolts and the like. The Willys-Overland company furnished 130 extra parts in all, including spring bolts, pads, clutch and brake pedal units, bumper, draw-bar, etc., exclusive of the wiring system. The Maxwell company supplied a large number of forgings and the spring hangers. Each assembler himself provided small brackets, the spark and control assemblies and a thousand and one small parts which go to make up the completed vehicle.

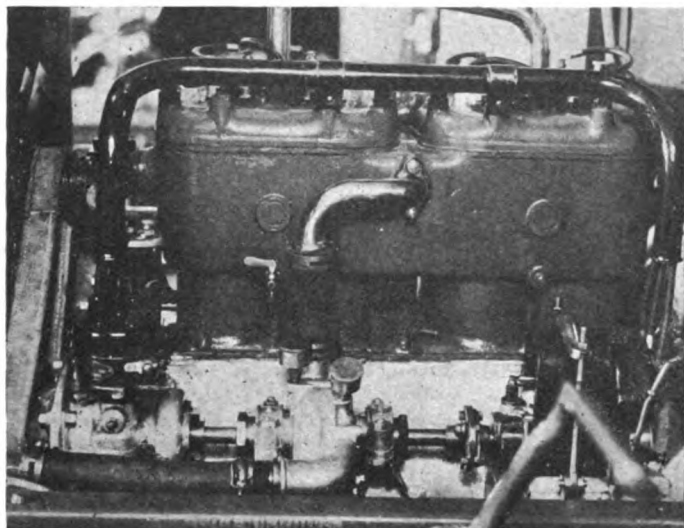
Will Drive Trucks Overland

According to the plans made known at this writing, it is intended to drive each of the trucks overland to Washington. The Reo job has a Quartermaster Corps body made by the Auto Body Co., Lansing, Mich., and the Federal job a body made by the C. R. Wilson Co., Detroit.

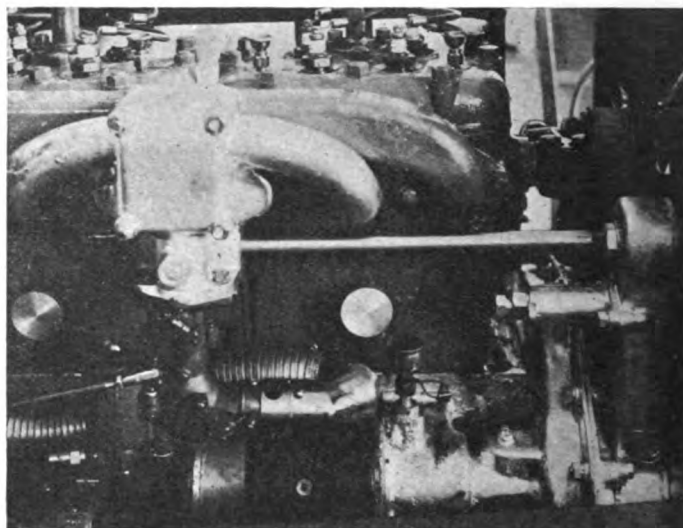
It is expected that as soon as the vehicles reach Washington and undergo satisfactory tests similar to those performed on the Class A and B trucks, they will be ordered in large quantities. It is expected that the Medical Corps and perhaps the Post Office Department will place the initial orders.

The AA truck can be made in great quantities, and as an indication of the production which can be had with these trucks, Walter E. Flanders, of the Maxwell company, volunteered the information that his company could build 100 of the trucks a day provided enough parts were made available.

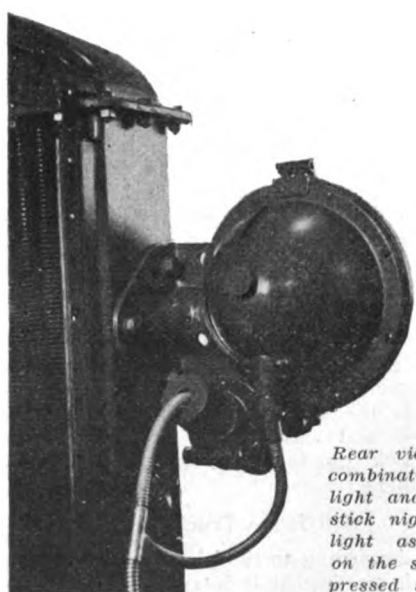
First Views of the Class AA Standardized $\frac{3}{4}$ -Ton War Trucks



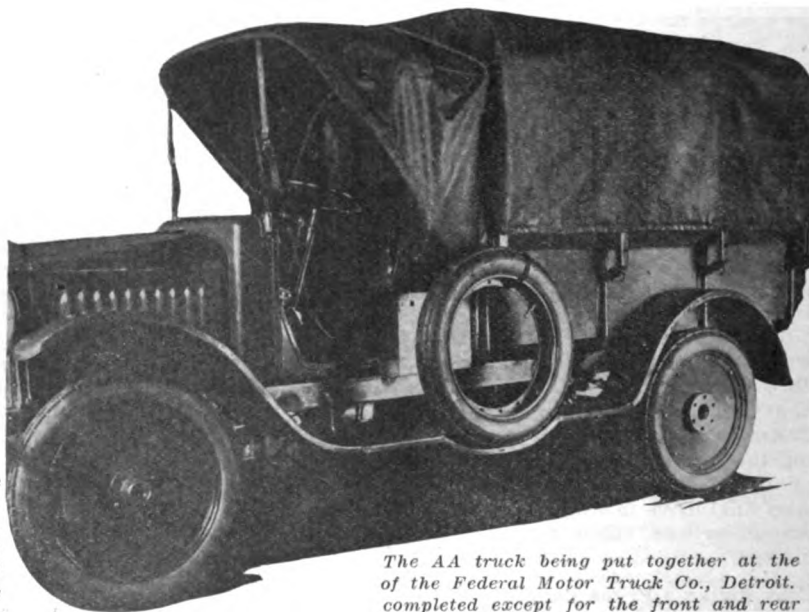
Right side of the engine showing the Remy distributor, the water pump and the Bosch magneto on the same longitudinal shaft. Note the two sets of spark plugs and the detachable heads on the cylinders



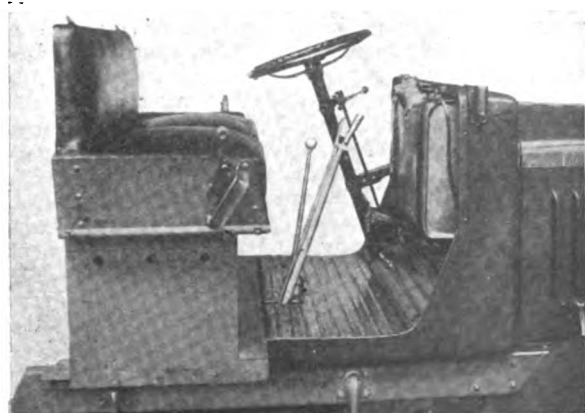
The left side of the engine showing the hot-spot manifold, the Stromberg carburetor and the hot-air pipe leading from the exhaust pipe under the fuel tank on the dash



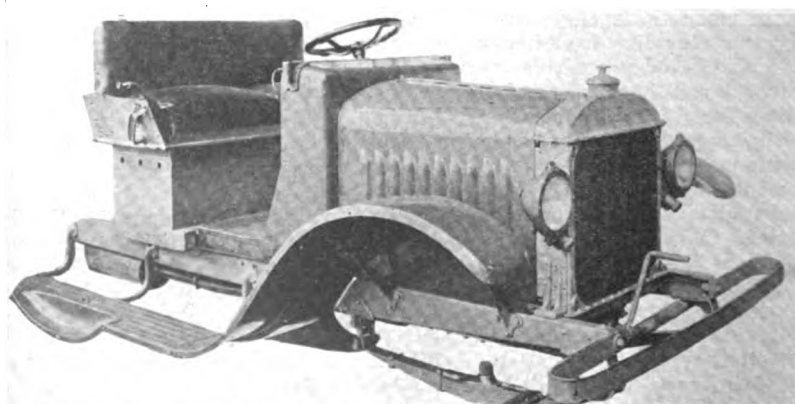
Rear view of the combination headlight and shaving-stick night driving light as mounted on the side of the pressed steel radiator



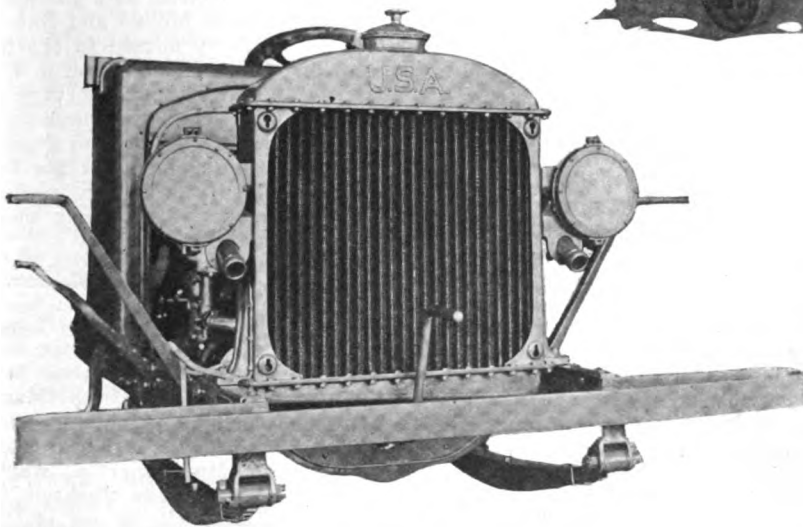
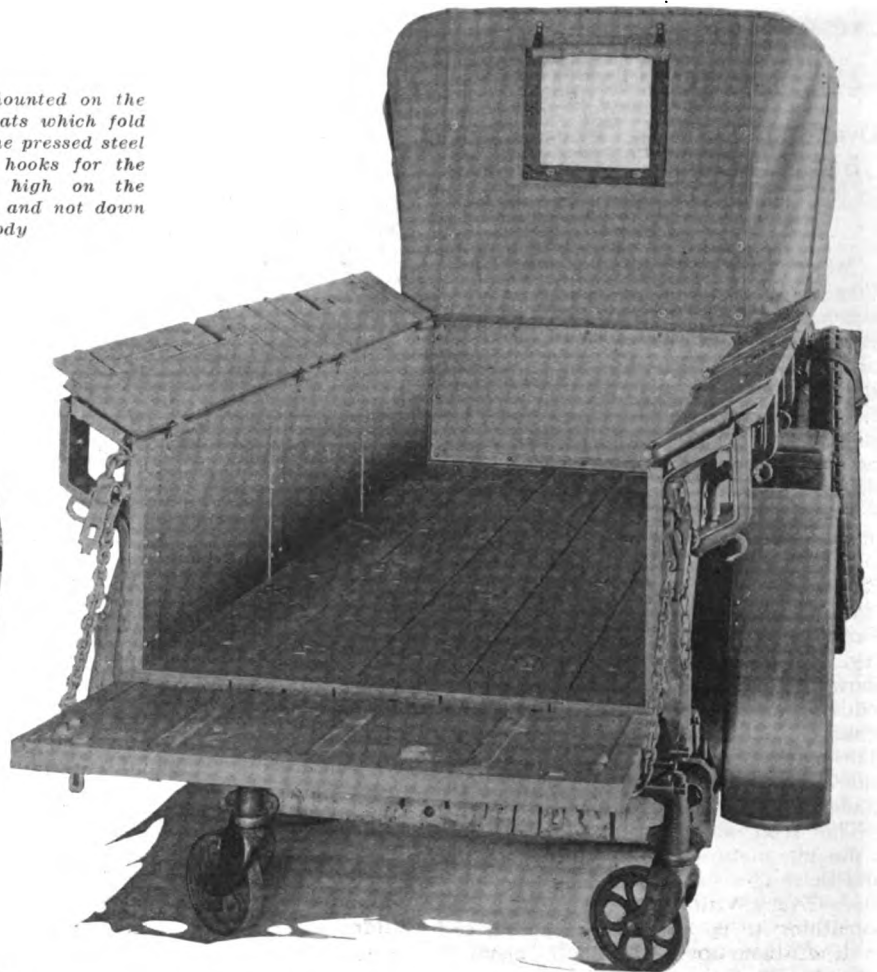
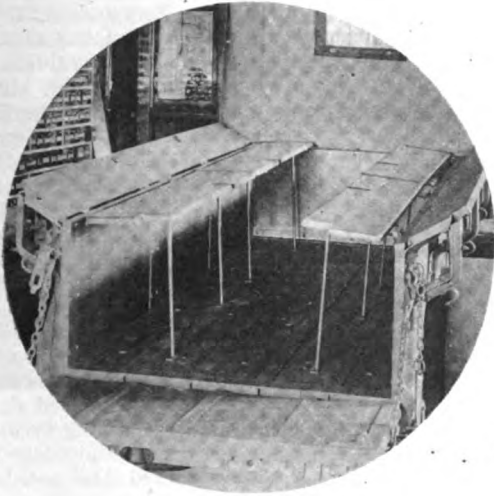
The AA truck being put together at the plant of the Federal Motor Truck Co., Detroit. It is completed except for the front and rear axles and shows one of the Q. M. C. bodies furnished by the C. R. Wilson Co., Detroit.



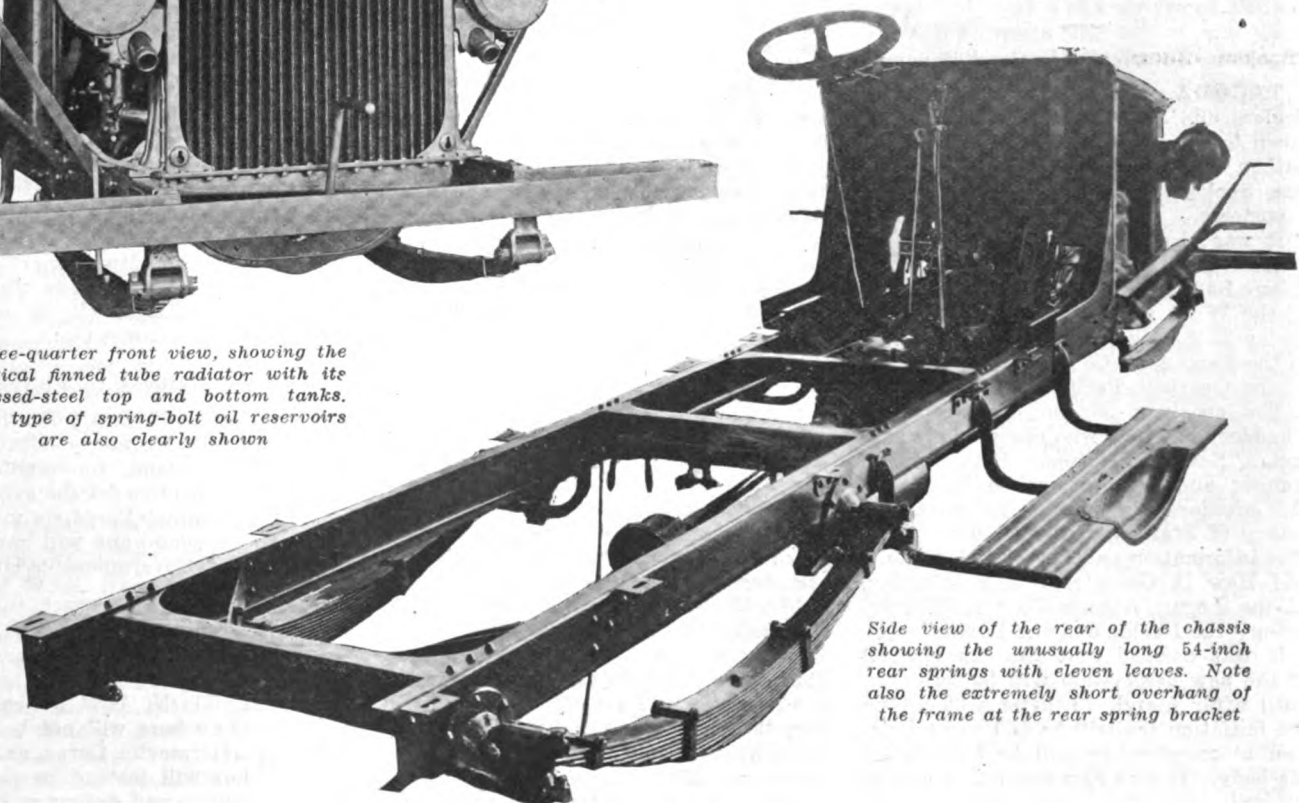
Two views of the Class AA chassis completed at the Maxwell plant, showing the well-upholstered seat, the arrangement of the control units and the substantial bumper with which the trucks are fitted



Rear view of the Q. M. C. body mounted on the Reo job and showing the hinged seats which fold back on the flareboards. Note also the pressed steel braces on the body sides and the hooks for the tarpaulin top. These are placed high on the pressed steel braces for convenience and not down near the bottom of the body



Three-quarter front view, showing the vertical finned tube radiator with its pressed-steel top and bottom tanks. The type of spring-bolt oil reservoirs are also clearly shown



Side view of the rear of the chassis showing the unusually long 54-inch rear springs with eleven leaves. Note also the extremely short overhang of the frame at the rear spring bracket

New York and Chicago Eclipsed by Twin City

Overland Building Houses Show Bigger than Both National Events —Record Attendance

MINNEAPOLIS, Feb. 4—The Twin City show, which opened to-day, is a real automotive show, and is bigger than the New York and Chicago exhibitions put together. On the opening day the crowds were so enormous that the box office facilities broke down, and the association officers had to take admission fees at the gate, and pass the people in without tickets.

The show is held in the Overland Building and there are nearly three miles of aisles. The exhibits are varied, and include not only passenger cars, but trucks, tractors and accessories for all three. Farm lighting and farm power machinery, as well as household appliances are shown. There is also one airplane on exhibit, and a big industrial section, including Red Cross and food administration booths. It is nearly a quarter of a mile around the building and the crowds made traveling slow.

The food administration is running a moving picture show in the basement, and there is a full-size dance floor there, too. Every visitor to the show found something to be enthusiastic about, and most of them are enthusiastic about it all.

The Twin City show, which is held half-way between Minneapolis and St. Paul, has proven such a big success that it is probable that neither city will ever hold an exclusive show again.

Spokane Automobile Dealers' Banquet

TACOMA, Feb. 1—Upwards of 100 dealers and their department heads sat down to the banquet given in the Elizabethan room at the Davenport Hotel by the Spokane Automobile Chamber of Commerce.

It was also an open meeting and the committee in charge was known as the "Four Bs," consisting of D. F. Bacheller, of the W. C. Garbe Co.; W. H. Barnes, of the T. J. Young Co.; George Beverly, of the Rossi Auto Co., and A. W. Barber, of the Overland-Pacific Co.

The speakers of the evening were: Thaddeus S. Lane, who chose as his subject, "Better Relations Between the Banker and the Automobile Man"; B. M. Gainsford of Olympia, Assistant Secretary of State, gave the club considerable information on "The New Lens Law and How It Operates"; P. C. Gartley, of the Logan Automobile Co., "Advertising—the Dealer and the Public."

It was decided that the charter roll of the new association will be left open until after March 12, after which time the initiation fee will be \$50 and admission to membership will be by vote of the body. It was also decided to extend an invitation to garage owners to join the association, and country dealers may

be associate members by paying dues of \$2 a month and no initiation fee.

Motor Truck Convoys Nearing Eastern Seaboard

WASHINGTON, D. C., Feb. 4—The five motor truck convoys en route to the eastern seaboard from Detroit are nearing their destination. The convoys have had to contend with the most severe winter storms in their journey, and in a number of instances were snowbound for two and three days at a time. The convoys are traveling one day apart.

Very Important

ST. LOUIS, Feb. 5.—Are motor cars essential?

St. Louis thinks they are. Because of a street-car strike, Special Deputy Robert E. Lee cancelled all fuel and light restrictions which have hampered the operation of garages and repair shops and virtually crippled the transportation system of the city. With both the street cars and the motor cars out of business, business virtually suspended. To-day the temperature is four above zero and transportation throughout the city is entirely by motor car and motor truck. Stores and factories report two-thirds of their workers on hand, but without motor cars they probably would have remained closed.

Garaged to Be Tested by Eminent Scientists

WASHINGTON, D. C., Feb. 4—Garaged, the new free energy which has been discussed in Congress and supposed to have been invented by G. T. K. Giragosian, will be tested in Boston shortly by eminent scientists to be selected from the faculties of Harvard, Yale, Massachusetts Institute of Technology, and the Worcester Polytechnic Institute. It was learned here to-day that just before the resolution was passed authorizing the tests, the British Embassy promised the inventor that if the U. S. Government did not accept the invention Great Britain wanted the opportunity to do so.

Racine Plans Its Show

RACINE, WIS., Feb. 2—The Racine Automobile Dealers' Association, organized recently by dealers and garagemen of Racine, Wis., has overcome numerous obstacles standing in the way of its proposed first annual motor show and is planning to stage the exposition in the Public Market Building late this month. Originally it was intended to hold the show in the big Lakeside Auditorium. The proceeds will be divided between the two hospitals of Racine. The dealers will wire the market and make other permanent improvements at no cost to the city. The association has a membership of twenty-five and embraces practically every dealer in Racine.

Ford to Manufacture One Sub Chaser a Day

Will Turn Out Government Vessels Like Motor Cars—Production Already Started

WASHINGTON, Feb. 5—The Ford Motor Co. is to manufacture submarine chasers at the rate of a completed boat a day. Word to this effect and additional information that one vessel has already been started has been made public.

As is to be the case with the 150-ft. vessels to be manufactured by the Elco Works, Bayonne, a brief description of which was given in Motor World last week, these sub chasers which Ford will build are to be highly standardized products. They are to be 200 ft. long and of 500 tons displacement. The boats will be fabricated largely of structural steel shapes by the progressive assembly method and will be launched at Detroit and taken to the sea by way of canals and inland waterways. Power will be furnished by geared steam turbines. There will be nothing freakish about the boats or their equipment. The number of boats ordered has not been revealed.

Iowa Garages Shorten Hours

DAVENPORT, IOWA, Jan. 31—Garages of Rock Island, Moline and Davenport have voluntarily agreed to shorten their working hours from 9 a. m. to 4.30 p. m. during the present coal shortage, to help conserve coal. The Fuel Administration men did not order garages to shorten their hours, but the members of the Tri-State Automobile Trades Assn. decided that patriotism consists in doing more than merely obeying orders.

To Auction Mutual Feb. 7

DETROIT, Feb. 2—Receivers will sell at public auction, Feb. 7, the plant and furnishings of the bankrupt Mutual Motors Co., Jackson, which made the Marion-Handley automobiles. Assets are inventoried at \$1,400,000. It is expected that the Jackson Munitions Co., which was recently organized in Jackson to make war munitions, will be one of the bidders for the defunct plant.

Shepler Moves to Cleveland

WASHINGTON, D. C., Feb. 2—Major Harry Shepler, formerly vice-president of Willys-Overland Co. and now in charge of production for the aviation section of the Signal Corps, is moving his offices to Cleveland and will have charge there of the Government aviation production supervision.

Ford Building to Be Used by Ordnance Branch

WASHINGTON, D. C., Feb. 4—The Ford Building here will not be occupied by the Quartermaster Corps, as was first planned, but will instead be taken over by the drafting and designing branch of the Ordnance.

Maxwell Farm Tractor To Sell at Low Price

**Start Production of Four-Wheel
Machine This Summer—Can
Be Used on Roads**

CHICAGO, Feb. 1—Maxwell has brought out a farm tractor.

The machine was sprung as a complete surprise last evening at a meeting of Maxwell-Chalmers dealers at the Congress Hotel.

The tractor is a small affair with four wheels, drive at the rear axle, extension axles, 12-in. tread behind with two attachable treads making the drivers 3 ft. wide for sand. It does not look unusual or freakish in any respect.

The price was not made public, but it was stated that it would compare as does the price of the Maxwell with other cars, which is taken to mean that it will be a low-priced machine.

Production will be coming through some time this summer.

The tractor has been in process of development on a sugar plantation for four years outside New Orleans. There it was known as "The Chief," a term applied to Walter Flanders by many in the organization. Hereafter the tractor will bear the Flanders name.

The tractor was sprung on the dealers by moving pictures, which showed the machine doing everything a mule could do except eat. One of the most important points is that the tractor is designed to draw the machinery that is to-day existing on thousands of farms. Special machinery is not necessary.

The treads can even be fitted for asphalt pavements, permitting the machine to be used in running farm products to town. It built roads, drove piles, sawed wood, climbed grades, drew all the plantation machinery and even cultivated.

\$37,898 for Pullman Creditors

YORK, PA., Feb. 2—Receivers for the Pullman Motor Car Co. have filed a report with Judge Charles B. Witmer, of the United States District Court at Scranton. Unless exceptions are taken to the accounts of the receivers within 30 days the report will be finally confirmed at the March session of the district court. The receivers' report shows a balance of \$37,898.36 for distribution among creditors.

Iowa Dealers Enlist Mechanics

DAVENPORT, IOWA, Feb. 5—At the request of W. E. Hall, national director of the United States Public Service Reserve, the Tri-City Automobile Trade Assn. has appointed five dealers in Rock Island, Moline and Davenport as enrollment agents to help secure motor mechanics for General Pershing's army in France. They are: A. B. Johnson, Davenport; R. E. Bedee, Davenport; S. J. Peterson, Moline; A. F. Sala, Rock Island; and John Goeden, East Moline.

The agents will enroll mechanics who apply for service and carry on an aggressive campaign to enlist men outside the draft age for mechanical work in the army.

F. W. D. Doubles Capital

CLINTONVILLE, WIS., Feb. 2—A stock dividend of 50 per cent was declared at the annual meeting of stockholders of the Four Wheel Drive Automobile Co., Clintonville, Wis., which is executing a contract for military trucks for the Government, involving about \$50,000,000. The dividend increases the capital stock of the corporation from \$1,000,000 to \$2,000,000. A year ago the capital was increased from \$500,000 to \$1,000,000. J. D. Cotton was elected a director to fill the vacancy caused by the death of John Kalmes, treasurer, several months ago.

Assembly Contracts for AA Trucks

WASHINGTON, D. C., Feb. 2—The Motor Transport section of the Quartermaster Corps plans to issue contracts for the assembling of the Class AA trucks in about the same manner as is being pursued with the Class A truck. This means that the manufacturers, or assemblers, will deal directly with the parts makers. In the case of the Class B truck, the Government dealt directly with the parts makers, and supplied the parts to the assemblers.

Will Map Truck Routes

WASHINGTON, Feb. 5—The Pathfinder car of the Highways Transport Committee of the Council of National Defense starts this week mapping out army truck routes for the Government. The committee has already laid out an official route from Detroit to the seaboard and another from Buffalo to the seaboard; it is now proposed to tap every truck manufacturing point in the central west and pick out feeder lines to two great main highways running eastward. The pathfinder will go as far west as the Mississippi river and will map routes from cities in Wisconsin, Illinois, Michigan, Indiana and Ohio. The car will be in charge of Raymond Beck, field engineer of the Highways Transport Committee; with the car will be Major W. D. Uhler, formerly State Highway Engineer of Pennsylvania and now connected with the Motor Transport Service of the Quartermaster's Department, and Captain E. B. Butchers, Brigade Engineer of the U. S. Engineers' Corps.

As each state line is reached a representative of the State Highway Department will join the car and proceed over the roads of his own state. When this trip is completed the Government will have four main highways forming connecting links between the great manufacturing centers of the country and the Atlantic seaboard. Motor transports on their way to France will follow these routes and will carry cargoes to relieve freight congestion. The drivers will secure their training under service conditions and be better fitted for their tasks of driving when they reach the war zone.

585 Members Now in Illinois Association

**At Fifth Annual Convention Reports
Show Organization Is in Good
Condition and Growing**

CHICAGO, Feb. 1—The garagemen of Illinois, who have been building a state association for four years, this week held their fifth annual convention in this city. The organization now has 585 members. There are 400 more who are not members, but who contributed \$3 each to a lien law legislative fund of \$2,100 and who may be taken in by special act of the board of directors. The lien law was passed. The association has no debts and a small bank balance.

The name was changed to Garage Owners' & Automobile Dealers' Association of Illinois and provision made for the membership of dealers who do not operate garages.

Charles L. Turner, Peoria, who has been active in the work since it began, was made president. The other officers are: First vice-president, John McNeil, Centralia; second vice-president, Fred R. Young, Moline; secretary-treasurer, H. E. Halbert, Chicago.

Under a reorganization plan a director is to be chosen from the members in each of the 51 senatorial districts of the state. These directors will elect an executive committee of five, including the president and secretary. One meeting a year will be held. The next session will be in Rock Island, probably in the late summer or fall.

Dues are \$2.50 every six months. Local associations pay a charter fee of \$25 and \$1.50 per capita instead of the \$2.50 semi-annual dues, but after the first year pay \$1 semi-annually.

An attorney is to be retained in each district to look after the affairs of members. Every active member of a local is an active member of the state association. Delegates are eliminated in conventions, each member having a vote.

Among the things done and to be done are: Support the American Fair Trade League; investigate insurance and secure a cheaper rate; plan a collection system; prepare forms for use in utilizing the lien law; prepare work order forms to be signed by customers, such forms incorporating a judgment note clause; thanked governor and legislature for supporting the lien law; made the governor and all members of the legislature honorary members of the association.

The meeting was held in the Green Room of the Congress Hotel the forenoons of Tuesday, Wednesday and Thursday.

Missouri Bans Plain Lenses

ST. LOUIS, Feb. 4—The new state law which prohibits plain lenses on motor car lights became effective Feb. 1 and accessory stores had the most rushing week of their existence.

Demand for Tractors Not Filled by 5 Per Cent

So Says Kettering, of S. A. E., in Best Attended Tractor Meeting
Ever Held—Not Possible to Standardize Yet

CHICAGO, Feb. 1—To-day's meeting of the tractor section of the Society of Automotive Engineers marks one of the first real steps in advance in this department of the society's work since the broadening of its field to fully include all automotive products. Broadly speaking, the work accomplished to-day was more the laying down of a future program of development than an accomplishment of progress in engineering detail. The work of the S. A. E. to-day was the sketching of the outline into which the picture of future developments will fit as the industry shapes itself and becomes more mature.

As President Kettering said, not 5 per cent of the demand for tractors has been filled. The industry is in its infancy, and we know so little of the tractor and so little of the problem which confronts us that it would be absurd to attempt to deal with detail at this early date. This feeling was common to the other engineers present, with the result that the broadest aspects of the tractor problem were considered. To again quote President Kettering, the tractor problem is 50 per cent engineering and 50 per cent psychology. Unless a tractor company studies the psychology of the farmer along with the engineering problems of the tractor itself, it will fail.

The program of the meeting included four papers on tractor service, tractor design, tractor engines and tractor transmissions, presented respectively by George Cormack, Appleton Mfg. Co.; George Strite, consulting engineer; H. C. Buffington, Minneapolis Steel & Machinery Co., and E. R. Greer, Emerson-Brantingham Co.

George Cormack's paper outlined the service that the tractor is to render this country in the time when agricultural products are such a vital factor in the welfare of the world. He spoke on the ethics of the manufacturer in forgetting the fact that he primarily engaged in manufacturing for the purpose of making money rapidly. In other words, tractor service means something more than the mere maintenance of the tractor in the field and in the repairshop.

It means the broadest kind of service which can be rendered by machines which are built by concerns which do not put out a product in which quality is slighted and profit only considered.

The other three papers were concerned more strictly with the engineering phases of tractor development. Probably the biggest lesson in the engineering end of the program is held up for the attention of automobile manufacturers who are endeavoring to enter the tractor field. The differences in fun-

damentals between tractor and automobile engineering are so great that automobile men must bear them continually in mind unless they wish to waste vast sums of money in learning the lessons that are at their disposal if they will only recognize with an open mind the facts which have already been discovered by men who have studied the tractor field for the past decade.

As summed up by President Kettering, the tractor engineer must remember that the tractor differs from the automobile in one very important respect: It will not coast when attached to three or four plows. When a machine is rated at 20 horsepower it must deliver 20 horsepower continually from one end of the day to the other. There can be no shirking on the part of the machine, because when it is needed by the farmer it is needed badly and must run with or without attention so that it performs its tasks in the desired manner.

1200 Attend War Dinner

The culmination of the program was in the war dinner held in the evening. More than 1200 were gathered at the biggest function ever held by the S. A. E.

The speakers were General Kener, commanding Camp Grant; H. L. Horning and W. H. Van Dervoort, who presided jointly; C. F. Kettering, president of the S. A. E.; Major W. G. Wall, of the ordnance department and a Major of the French army. The speakers without exception dealt with the national problems in connection with the war and told how we are overcoming the great difficulties of raising within a few months an army that normally would require years to get together.

Captain Donaldson of the ordnance department asked for volunteers during the afternoon meeting for men to go to France as ordnance officers for all around engineering service. He secured nearly twenty applications during the afternoon from men who are strongly interested in the tractor service and will probably have an increased number from the engineers in attendance at the meeting.

George Strite touched on the demand for the highest power on the part of the farmer. He said that even in the days of the big tractor pulling eight or ten plows the pressure and influence exerted by the customer for just a little more power was almost irresistible and the temptation was continually to build something larger, although sound engineering knowledge pointed out that the smaller machine was sure to come into favor. Mr. Strite dealt with the difficulty of clearly explaining horsepower to the farmer and stated that power

should be rated as in terms of displacement or simple pull in pounds.

H. L. Horning in discussing this paper stated that the matter of the standard liberty tractor for government use had come up in Washington from time to time and it was proposed at one time to adopt the Ford tractor as England has done and other types were also considered, but finally no standard was adopted. It was the consensus of opinion that the tractor is not old enough to standardize. We are just starting on an era of big things in the tractor work, and we will greatly regret it if we try to go too far with standardization which will hamper future progress.

C. F. Kettering spoke of the differences between automobile engineering and tractor engineering, and stated that owing to the fact that the tractor is continually under full load it is necessary for the automobile engineer to entirely revise his ideas concerning engine performance. R. E. Davis of the Moline Plow Co. stated that automobile and tractor engineers could learn much from each other and one point which should be particularly closely studied is that of the automatic lubrication of parts. The farmer will not stop to lubricate his machine and so it is necessary to so design the bearing parts that oiling is of an automatic nature as far as it is possible to make it so.

Happy Farmer Adds \$1,000,000

LA CROSSE, WIS., Feb. 4—The La Crosse Tractor Co., La Crosse, Wis., manufacturer of the Happy Farmer tractor and other agricultural machinery, has increased its capital stock of \$1,500,000 to \$2,500,000 to accommodate its largely increased business. The company is working at maximum capacity with a force of 400 men in the execution of large foreign and domestic orders for tractors. Within the past year it has more than doubled its output and at this time it is making extensive additions to its capacity.

Stock Show Brings Sales

DENVER, Jan. 30—The motor car industry in the Rocky Mountain territory is enjoying a winter prosperity stimulus from last week's National Western Stock Show, which brought to Denver thousands of visitors from Colorado and neighboring states. Leading distributors are elated over resulting sales already closed.

Farm Tractor Now Fond du Lac

FOND DU LAC, WIS., Feb. 4—The Farm Tractor Co., Fond du Lac, Wis., builder of farm tractors and power machinery, has changed its corporate style to Fond du Lac Tractor Co. to better designate its business and to avoid confusion resulting from the former style. The company has a capital stock of \$20,000. Fred J. Rueping is president and M. M. Cory is secretary.

Emergency Call For 7000 Motor Mechanics

Additional Men Needed to Serve With Aviation Corps—Must Be Outside Draft Age

WASHINGTON, D. C., Feb. 4—An emergency call for 7000 additional motor mechanics for service with the Aviation Corps in France has been issued through the United States Public Service Reserve, which is a division of the Department of Labor here. These 7000 will be men outside of draft age, the ages specified being 18-21 and 31-40, inclusive. The plan is to send all of these men to France as soon after Feb. 4 as possible.

The list of those required includes men for all kinds of work, such as mechanics for all parts of the chassis, bodies, and workers for machine shops, tire repair departments, motorcycles, sheet metal, electrical apparatus and instruments for airplanes.

The salaries to be paid range from \$30 to \$87 per month. When the allowances for dependents are added these limits of salary are raised from \$68.50 to \$129.70 per month.

The men required are to be formed into regiments, and the classification follows:

	No.	
Privates	506	\$30 to \$68.50
Privates, first class.....	2,024	33 to 72.10
Corporals	2,064	36 to 75.70
Sergeants	1,806	44 to 85.30
Sergeants, first class....	522	53 to 96.10
Master Signal Electricians	82	87 to 129.70

Weld County Trade Organized

DENVER, Feb. 4—The Weld County Auto Trades Association, with headquarters in Greeley and directors also in Eaton, Evans and Windsor, has just been organized by Secretary Harry G. Mock, of the Rocky Mountain Auto Trades Association. The officers are: President, D. R. McArthur, Buick dealer; vice-president, C. E. Sherman, Cadillac and Studebaker dealer; secretary-treasurer, W. I. Heath, Ford dealer. The new organization has started with thirty members, the majority of whom have also affiliated with the Rocky Mountain Auto Trades Association through individual memberships. The first regular meeting was held last week, and was attended by Secretary Mock and four prominent Denver tradesmen, and also by tradesmen from Fort Collins, Col., and Cheyenne, Wyo. The plan is to meet twice a month.

Start Wire Wheel Patent Suits

NEW YORK, Feb. 4—The Wire Wheel Corp. of America has started suit charging infringements of five of its wire wheel patents, Nos. 1,047,742—Pugh; 760,684—Cowles; 1,030,428—Cowles; 1,076,558—Duffy, and 1,125,498—Duffy.

The suit, has been entered against C. T. Silver, Metropolitan distributor of Kissel and Apperson cars on the grounds that cars exhibited by Silver are equipped with Frayer type wheels made by the Phelps Mfg. Co., Columbus, Ohio.

Dorris Gets Mogul Plant

ST. LOUIS, Feb. 1—The Dorris Motor Car Co. has acquired the plant of the Mogul Motor Truck Co., which adjoins the Dorris plant. A receivership recently was asked for the Mogul Co. The Dorris company also has acquired as a building site a lot adjoining the plant, 200 x 177, and plans are being made for the extension of the factory on this site.

Plan Registration of New York Drivers

ALBANY, N. Y., Feb. 2—The executive committee of the New York State Automobile Association has instructed the Law and Legislative Committee to have reintroduced in the legislature a bill providing for the registration of all drivers in the State of New York. Such a bill, applying only to the city of New York, was passed by the last legislature. The association also favors an amendment to the present headlight law to provide for the making of tests by competent experts selected by the Secretary of State to ascertain if the different devices and lenses now in use comply with the law.

Another proposed bill to be backed by the association will be one compelling every garage, filling station, accessory house and others dealing in oil or gasoline to conspicuously display on or within 5 ft. of the gasoline pump or oil tank the price of gasoline and oil and the grade and make of oil which they are offering for sale in letters to be easily distinguished at a distance of 50 ft.

Botterill N. A. D. A. Vice-President

DENVER, Feb. 4—Tom Botterill, veteran motor car dealer, has been chosen Colorado vice-president of the National Automobile Dealers' Association to serve the unexpired term of Walter J. Haughey, who has resigned. Botterill is Pierce and Hudson distributor for Colorado and adjacent territory and Dodge dealer for Denver and vicinity, and Haughey is sales manager of the MacFarland Auto Co., Buick distributor for Colorado and Wyoming. Both are well known in the Rocky Mountain territory and members of the Denver and Rocky Mountain Auto Trades Associations.

Globe Truck Officers Elected

EAST ST. LOUIS, Feb. 5—The Globe Motor Truck Co., at its first annual stockholders' meeting, elected the following officers: President, David A. Marks; vice-president, Christopher Beckemeier; secretary, Nansen J. Marks; directors, David A. Marks, Louis Hughes, George Baeker, John Soy, George Chapline, Christopher Beckemeier and William G. Meier. The company was formed in January, 1917.

Denver Not Affected By Freight Situation

Distributors Fear That Serious Conditions May Develop In Next Few Weeks or Months

DENVER, Feb. 4—The freight car situation has not yet handicapped the majority of Denver distributors very seriously, although delayed shipments have already become a hard problem for some and there is considerable anxiety in general regarding conditions likely to develop during the next few weeks or months. The main features of the delivery situation in this territory are indicated by the following reports from several distributors:

MacFarland Auto Co. (Buick)—Perhaps harder hit than any other distributor right now. Unable to fill half of orders, and notifying all dealers not to ask for more than half of their contract allotment for this month. Extra trouble due to inability to trace shipments. Besides making it impossible to get a practical basis for promising deliveries, this difficulty also hinders the diverting of shipments to dealers getting carload lots out in the territory, a system used to reach Colorado common points direct, in order to save extra freight charges to the same points if shipments come first to Denver as terminal and are then reshipped to final destination.

E. J. Johnson (Chalmers and Maxwell)—No trouble thus far. Well enough stocked to tide over emergency.

Cadillac Motor Company of Denver—Shipments are slow, but freight car shortage not held as the cause. Mainly a supply situation at factory.

W. W. Barnett (Oldsmobile and Federal and Stewart trucks)—Trouble in getting trucks mainly a production problem at present, but Oldsmobile shipments hindered considerably by freight situation.

Miller-Ray Motor Co. (Kissel)—Fairly well fixed now on passenger cars and better on trucks. Prepared for emergency by ordering large supply ahead, but complete tieup continuing two or three weeks longer would have serious effect. Factory reports unable to get freight cars for past week.

Tom Botterill (Pierce, Hudson and Dodge)—Fair, though short. Shipments running about 60 per cent of contracts. Impossibility of tracing is a hard problem. "But not kicking," says Mr. Botterill. "If shipping fewer motor cars will help win the war, then I'll be glad to wait as long as necessary."

Platt-Fawcett (Oakland)—No trouble thus far.

Automobile Sales Corp. (Franklin and Studebaker)—No trouble so far, and well situated for few more weeks. New models not yet due, and expected in time to meet needs unless freight conditions become a great deal worse.

Overland distributing branch—Plenty of cars in stock from extra supply in December.

Ford branch assembling plant—Shut-down last three days from lack of parts, but expect to start running again by three days more.

A few distributors report the freight situation partly offset by the Eastern embargo and the drive-away blockade by bad weather in factory districts, because these two factors lessen the out-

put shortage temporarily and release more cars than usual for this territory. In fact, some have been able to get more cars than they were a year ago. Sales have averaged somewhat slower during the holiday season, but the trade outlook is satisfactory in general. Local freight conditions have been helped considerably by weather favorable for driving away cars by outside dealers. A great deal of this is being done, except in the higher mountain districts, and there the demand is much less at this time of year.

Detroit Used Car Show Successful

DETROIT, Feb. 5—The show of used cars and trucks which is being promoted by the Detroit Automobile Dealers Association is proving successful. It was opened in the Overland Building Feb. 2 and will continue till the end of this week. On the first day about 2000 persons passed the gates and several sales were made. There are nearly 300 cars and trucks displayed and nearly every prominent dealer in Detroit has space. Admission is by tickets distributed free by dealers and obtainable at all hotels and newsstands.

Eschner Heads St. Paul

ST. PAUL, Feb. 6—The St. Paul Automobile Trade Association has elected officers as follows: President, Le Roy Eschner; vice-president, E. H. Nolan; secretary-treasurer, L. W. Jordan; directors, Dr. A. A. VanDyke, L. C. Roller, H. A. Brandtjen, B. F. Powers, W. H. Schmelzel.

Western Fuel Administrators Meet

KANSAS CITY, Jan. 30—Fuel administrators of Kansas, Missouri, Oklahoma, Arkansas, Nebraska and Iowa held a conference in Kansas City January 21, especially to discuss the proposal to appoint distributors by zones, and to perfect the co-operative arrangements for supplying coal to these states. There was agreement that the season is too far gone for zone distributors to be of much avail in this district now.

So far, no state administrator in this group has issued orders for the suspension of any manufacturing enterprises, or its curtailment, with these two exceptions: In Kansas, Emerson Carey passed along the federal order for the curtailment of straw board factory work; and in Missouri, Wallace Crossley has included breweries in his general order for the closing of saloons and amusements Mondays and Tuesdays. In Missouri, there are restrictions on the use of lights, office buildings being closed at 7 p.m., all lights being out (except enough necessary to show the way) downtown, banquets, theaters, stores, etc., at 10 o'clock at night; stores except food stores, open only from 7 to 7.

Matinee Price for St. Louis Show

ST. LOUIS, Jan. 28—The St. Louis Automobile Show, Feb. 18 to 23, announces a matinee price from 11 a. m. until 5 p. m. of 25 cents admission, war tax added. After 5 p. m. the admission will be 50 cents, war tax added.

California Registers 306,247 Motor Cars

Gain of 31 Per Cent Over 1916— State Shows Record Increase— 97,000 Cars in Los Angeles

LOS ANGELES, Jan. 30—Report on the registration of motor cars in the State of California for 1917 shows 306,247 on the list, a gain over 1916 of approximately 70,000, or 31 per cent. This is the largest increase in registrations in the history of the State Motor Vehicle Department. Los Angeles led all counties in the State with a gain of 21,327, and now has practically 97,000 registered cars within its precincts. This is more cars than were in 33 States of the Union, according to reports last July.

Motor car sales did not slump following the declaration of war by the United States, and it began to appear as if the example of Canada, where sales have gained materially, would be emulated here. Since the dawn of 1918, though, there has come a change. January business is slower than January, 1917, and dealers are beginning to feel apprehensive for the future.

Owing to shipping conditions, it has been impossible for one or two dealers to supply the demand, but two weeks of normal conditions would put cars on hand. It is expected now that factories in the East will begin crowding the dealers here with deliveries soon. One big producer already has sent a trainload of cars to this point, and all have gone into warehouses because dealers would not take them up.

Changes in Goodyear Branches

AKRON, OHIO, Jan. 26—The Goodyear Tire & Rubber Co. has made the following changes in branch managers: P. A. Kerns, formerly manager at Butte, Mont., has been made manager at Buffalo, N. Y.; W. J. Peete, who has been handling government business at Washington, will succeed Kerns at Butte; F. L. Morgan has been promoted from assistant manager at Philadelphia to manager of the Cleveland branch, succeeding F. N. Hammond, and R. J. Davies, formerly city salesman at Jacksonville, Fla., has been appointed manager of the Nashville, Tenn., branch, succeeding E. H. Morris who has entered government service.

Brewer-Mosel Co. to Sell Wisconsin Tractor

SAUK CITY, WIS., Jan. 31—The Wisconsin Farm Tractor Co. has concluded arrangements with the Brewer-Mosel Automobile Co., Madison, Wis., to market its entire output for 1918, giving it exclusive representation of the Wisconsin line in the United States and foreign countries. An active sales campaign already has been undertaken.

The Wisconsin company was organized two years ago by Earl McFarland and John Westmont, Lodi, Wis., to manufac-

ture an all-steel tractor. The firm leased the new plant erected at Sauk City, Wis., for the Shaw Motor Co., Chicago, but never occupied by that concern. A short time ago the business was incorporated under its present name, with an authorized capital stock of \$100,000 and arrangements made for a greatly increased output. The principal model is a 16-32, using kerosene as fuel, and is capable of drawing 4 plows. It also can be used as a power plant for grain separators and other farm machinery. It retails at \$1,850. The Brewer-Mosel company was organized in December, 1915, and is a district distributor of the Maxwell in 10 southwestern Wisconsin counties, and has 38 sub-dealers. It sold 559 Maxwells in 1917 and its 1918 contract calls for 600 passenger and 163 1-ton Maxwell commercial cars. O. F. Brewer is vice-president and general manager.

Passaic, N. J., to Organize

PASSAIC, N. J., Jan. 31—A movement is on foot for organizing a trade association among local dealers and garagemen. According to the present outlook, it will be possible to get about 40 members of the trade together. The first meeting is scheduled for Feb. 5, at which time by-laws will be adopted and officers elected.

Gary Has 1½-Ton Model

NEW YORK, Jan. 31—In the description of the truck made by the Gary Motor Truck Co., which appeared in a recent issue of Motor World, it was inadvertently stated that in addition to the three larger sizes made, namely, 2, 2½ and 3-ton capacity, two others of 1-ton and 2½-ton capacity also are made. This should have read 1-ton and 1½-ton capacity.

Rockford Dealers on Cash Basis

ROCKFORD, ILL., Jan. 31—At a dealers' meeting some of the principal members in the Rockford Automobile Dealers' Assn. voted to go on a cash basis and also to use the trade acceptance. The Joslyn Automobile Co. has cut down its number of charge accounts from 1250 to 207, the rest of the business being done for cash or acceptance, the acceptance being due the 10th of the month following the date of purchase. This releases a large amount of capital for the transaction of business.

Scrap Metal Prices

NEW YORK, Jan. 31—Following are prices paid by New York dealers for scrap metals during the past week. They are from Iron Age:

	Cents Per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy.....	17.00 to 17.25
Brass, light.....	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow rod brass turnings.....	13.50 to 14.00
No. 1 red brass or composition turnings.....	19.00 to 20.00
Lead, heavy.....	6.25
Lead, tea.....	5.00
Zinc.....	6.00

Tractor Dealers to Solve Farm Labor Problem

Kansas Dealer Is Convinced Demand Will Be for Medium Size and Power Tractors

KANSAS CITY, Feb. 1.—While state officials and county agents are doing all in their power to obviate the imminent shortage of farm labor in Kansas the tractor dealers of the state are doing all in their power to have prospective tractor buyers put in their orders early and make an early decision as to the size and character of tractor they will require for farm use this year.

Among the thousands who gathered at Farm and Home week at the Kansas State Agricultural College at Manhattan the week of Jan. 21 were many tractor dealers who came in to feel out the pulse of the farmers of the state and to see what the tractor demonstrations and lectures given by the engineering and farm machinery departments of the State Agricultural College brought out.

These tractor dealers also were anxious to ascertain, as are all the farmers of the state, the exact status of the labor situation in Kansas. Many of these tractor dealers have automobile salesrooms and garage and repairshops, and are beginning to deal in motor trucks, and they not only have to face the problem of assisting the farmer to secure labor-saving farm power but they have to face the problem for themselves of securing men to aid them in their garages, repairshops, and to give service to tractor buyers and users of tractors.

R. N. Davis of Mankato, who has the entire area of Jewel County for one of the leading tractor concerns and an equally large automobile and motor truck factory, is confident that he will be able to get all his orders for tractors in by March 1, and has taken a scientific survey of the situation in Jewel County which is typical of all the other counties of the state, unless it is the big wheat farm counties more to the southwest of Manhattan. Davis is an extensive farmer himself. He operates two tractors on his own farm, one an 8-16 and the other a 30-60.

At the conclusion of his stay at Manhattan last week, and after conferences with many other tractor dealers and hundreds of tractor users, Davis said that he was convinced that the demand for tractors in Kansas this year will be for the medium sized and powered tractor, one between the 8-16 and the 30-60 types.

Davis based this opinion on the conditions growing out of the labor shortage. The 8-16 tractor will draw two plows on a majority of Kansas farms, and on but a few will draw a three-bottom plow.

But few farms in the state have area enough to justify the purchase of the 30-60 types, he states. Most of the farms requiring this type of tractor, which is used for threshing and hauling after the crops are harvested, already have them in use, so the demand for this size of tractor is now at a minimum.

On the other hand, the demand for increased production with fewer men and with a lessened man power is such that the 8-16 size tractor is hardly large enough to meet the exigencies of the times in Kansas. The farmer who can operate an 8-16 finds no difficulty in taking over the operation and management of a 15-30, and this is the type Davis professes to see in demand in Kansas this season.

Such a type and size can be used for threshing, especially where there are community-owned threshing machines. They will haul good big wagon trains, and they fill in all uses on the farm such as ensilage cutting and feed grinding.

For some of these tasks the 8-16 is considered rather small in view of the fact that the tractor must play a more important role in Kansas farm activities this year than ever before.

The horse shortage in Kansas is acute.

The remount service of the United States Army has taken all the big Percheron geldings available and that farmers would sell, and at prices that are far above those ever paid in Kansas for horses. With these horses gone to war the Kansas farmer must naturally turn to the tractive internal combustion engine, and he has the money with which to buy.

Many farmers who had moved to the towns and cities of the state to take life easy, leaving their farms in the care of renters or tenants, are going back to the farms this spring. This was brought out strongly in the Farm and Home week at Manhattan. All these returning forces are thoroughly acquainted with the use of automobiles and have naturally watched with keen interest the progress made in tractors. If they do not already have tractors on their farms they will turn to them at once, dealers who looked the situation over closely predict.

Tractor dealers, particularly those who have motor truck and automobile lines in connection with their tractor sales, are trying to find a way out of the problem of labor for repair and service branches of their business.

Co-operative deliveries of merchandise in the cities and towns of the state will release many motor truck and motor car drivers to the garages, and to tractor, motor car and motor truck dealers. These boys and young men, most of them under draft age, will prefer to keep in touch with motors rather than to engage in more arduous work, tractor men, automobile and motor truck dealers say. If this is true the problem of labor for the tractor and garage and motor car dealers out in the state will be partially solved.

Southwest Big Tractor Buyer

Sales to Dealers at Oklahoma Tractor Show Unprecedented—Big Display of Tillage Tools

OKLAHOMA CITY, Feb. 4.—The southwestern states, where an unprecedented demand for tractors has set up in the last six months, patronized the Oklahoma City tractor show the week of Jan. 21 to 26.

The attendance, when figures were analyzed, showed that 80 per cent of those who registered were farmers from Oklahoma, Texas and Arkansas, this being an extraordinarily large percentage of farmers over dealers. Particularly favorable weather augmented the attendance of the show which was held in the Emerson - Brantingham Implement Co. building, using two entire floors.

Sales to dealers were far beyond all the expectations of the firms participating, and these sales to dealers were eclipsed in the sales to farmers direct. The same clamorous demand for tractors with which to conserve man power and bring about increased production that is prevalent in the corn belt states at this time is prevalent in the grass and wheat

belts of the southwestern states. Crop prospects have been given a roseate hue by the unprecedented snowfall all over Oklahoma, parts of Texas and Arkansas and good rains over the remaining sections of these states. Southern Kansas sent a fairly good representation of dealers and farmers to the Oklahoma City tractor show.

Twenty of the leading manufacturers of tractors and one make-a-tractor concern had individual exhibits. The display of tillage tools adaptable to use with tractors was extremely large and this proved a very attractive feature of the show.

Practically every farm implement that can be propelled by a tractor was shown in its relation to tractor service, and virtually every farm machine that requires belt power was shown in similar relations. Nowhere has the adaptability of the tractor to all kinds of farm uses been so efficiently and cleverly shown as at the Oklahoma City tractor show. The

Oklahoma City show was as liberal in its lessons taught as the patronage that accrued to the exhibitors through visualized tractor uses.

Oklahoma, Texas and Arkansas automobile dealers who can secure tractor agencies are hurrying to do so in view of the great demand that has come in that section for tractors. They have the trained sales and service forces and the acquaintance and the capital to stock tractors and push sales to the farmers whose wants they are particularly fitted to gauge and serve.

High Wages Drawing Mechanics to Big Towns

SACRAMENTO, Feb. 4—High wages and steady work offered by automobile shops in the larger cities of California are fast depleting the supply of mechanics in the small towns.

The country garage has to a large extent become a one man concern in which the proprietor is compelled to don overalls while the wife or daughter attends to the clerical work and oftentimes to the gasoline tank.

Various means to offset the shortage of labor have been devised and where local trades association exist the efforts have been fairly successful.

In Richmond, the largest city of Contra Costa County, garagemen and dealers have adopted and are strictly enforcing a spot cash policy. Although in operation since Dec. 1, the innovation has caused no loss of business, and whether the customer be the Standard Oil Co. or the humblest jitney driver *spot cash* is insisted on and paid.

The young garagemen of Santa Rosa and Petaluma are calling on their "dads" and uncles for aid in the emergency. Many a retired rancher may be found tinkering around his son's shop and in several instances the wife was found to have assumed management.

Sebastopol, Healdsburg, Cloverdale and Ukiah have formed local organizations, each member of the automobile fraternity helping his neighbor when called upon.

The absence of a get together spirit among the garagemen of Napa and Dixon has resulted in the failure of several attempts at organization, and the trade is suffering considerably from price-cutters and bad accounts.

The "dog eat dog" policy is probably more strongly developed in Dixon than in any other city of the state. The rate war started when one garageman reduced storage rates to \$1.50 a month; the cuts were not only met, but reduction followed reduction until the suicidal policy of "free storage" was adopted.

The car owner of Dixon pays nothing for storage or garage service; often he buys his automobile necessities in San Francisco or Sacramento, leaving his friend the garageman ruefully holding the sack.

Business among automobile and truck dealers of Sacramento and Stockton has never been better. In the Capital City many new automobile buildings have been erected and several are in course of construction.

80,000 Aviators Ready for Overseas Service

This Despite Many Delays in Getting Necessary Mechanics and Airplane Material

WASHINGTON, Feb. 4 — Although there are now 80,000 aviators trained, or nearly trained, and ready for service with the American Aviation Fleet, it has not all been plain sailing to fit these men for the work and to provide them with the planes necessary to do the work. There have been hitches and halts but it is hoped now that many of these troubles have been remedied and that from this date forward the production of both men and machines will continue with much greater smoothness than it has in the past.

At the meetings which were held last week by the Senate Military Affairs Committee to ascertain what progress had been made in the aviation branch of the war machinery, it was brought out that America's aviation program, which will cost \$1,000,000 in addition to the \$640,000,000 already expended, has been delayed 2 months because of necessary changes in the type of combat machines which have been essential because of constantly altering plans to meet the ever-changing German tactics.

There has also been a delay in the drafting of thousands of skilled tool makers who have been assigned places in the national army instead of in the aviation section where the production of planes and engines might have been speeded up with their help.

It was also brought out that there has been a scarcity of spruce and that this has been caused by the unwillingness of great lumber concerns to cut sufficient lumber to produce the spruce needed; a contributory cause has been the absence of an official in the lumber districts who is clothed with full authority.

That an additional appropriation of \$1,000,000,000 would not be too much with which to carry out properly the aviation program was indicated in one statement which was made by Col. E. A. Deeds, who brought out that the life of a battle plane used at the front is only about two months, after which it must be replaced with a new machine.

Making Boys Into Tractor Experts

HUTCHINSON, KAN., Feb. 4—C. O. Hitchcock, an implement dealer of Hutchinson, has established a school for high school boys which meets every Friday afternoon for instruction in farm machinery and tractors. The boys are given actual work on the equipment and tractors to prepare them for going onto the farms this summer and taking care of the machinery in doing farm work. While this is an original enterprise with Hitchcock, it fits in nicely with the plans of the Federal and State agencies for educating city boys in the elements of

farm work so that they might be useful on the farms this summer.

Spokane Branch for Chevrolet

FLINT, Jan. 31—The Chevrolet Motor Co. is establishing a branch at Spokane, Wash., under the management of W. C. Hendricks, who for some time past has been assistant sales manager at the Oakland, Cal., factory. The territory covered by the branch includes northern Idaho and eastern Washington.

Kansas Farmer to Prove Utility of Automobile

KANSAS CITY, Feb. 1—The words "pleasure cars" can hardly be applied to any Kansas automobile according to members of the extension department of the Kansas State Agricultural College, as the results of observations gained through Farm and Home week at Kansas State Agricultural College at Manhattan last week, Jan. 21 to 26.

Kansas is now entering on the most highly specialized and intensified program of increased production and conservation any state in the Union ever attempted. Every instrument of activity is enlisted in the campaign for bigger crops in Kansas in 1918. This means that Kansas will try to eclipse all her past records for the production of wheat, oats, corn, beef, pork, wool and mutton and all the smaller grain and garden crops as well.

The automobile in Kansas this year will be a pleasure car only in the sense that the Kansas farmer will take his family to church on Sunday or to the community meetings that are being planned for evenings all over the state and at which increased production will be the theme.

If the farmer goes to town in his automobile it will be to secure supplies for the farm or repairs for his farm machinery. If the merchant goes to the country in his automobile during the growing season of 1918 it will be to give service to some farm tractor or some farm engine or motor truck that is doing service in the campaign of increased production in 1918, or to convey supplies to some farmer who is too busy plowing or seeding or harvesting to go to town for the things he needs.

Kansas has outlined for itself a program that will require 8 hours work twice a day for 6 days each week on a schedule that will call for 60 miles an hour every one of the 16 working hours of those 6 days.

This means that every tractor will be driven from daylight to dusk to plow and seed and harvest.

Horses are too slow to speed up the production propaganda of Kansas for 1918. Only the automobile can fill the need of the Kansas farmer for auxiliary service to this production campaign in 1918.

Every farm implement laid up for repairs in 1918 means just that much detracted from this production campaign.

Every minute lost when man-power is so short means that time is wasted.

Dealer Must Make Himself

*Says Sales Manager Thomas J. Toner to
Maxwell-Chalmers Dealers*

CHICAGO, Feb. 1—The old and so often discussed question of whether the dealer gets a square deal from the factory and whether short-term contracts are equitable received unexpected limelight last evening at the Maxwell-Chalmers dinner when Sales Manager Thomas J. Toner surprised some of those present by bringing up the subject himself.

Toner stated that it costs factories hundreds of thousands of dollars every year for re-contracting, and that it looks like an unnecessary expense. He said no dealer should have to worry about how long he is going to have an agency and that no factory should worry about how long it would have a dealer.

He said the dealer should be on a good basis, and should be in such relationship that he could know that the only one who would lose his agency for him would be himself. The dealer should, he stated, be so sound financially and so well established and so good a business man and merchandiser that the factory would not have to worry about the continuation of the dealer. Changes, he said, are expensive.

Toner also stated that dealers must readjust themselves, that they must turn to trucks and tractors and round out their businesses, making their businesses more stable and taking advantage of the sales possibilities that are going to be grabbed by some one.

Kellam and M. O. Neal, Peoria; L. R. Denman and W. R. Wood, Portland; H. J. Quane, and C. V. Leslie, Regina, Can.; Ralph Steuard and J. Y. Owsley, Salt Lake City; Alvin Olson and L. A. Bloodworth, San Francisco; T. D. M. Osborne and F. R. Shultz, Saskatoon; G. P. Yount and G. W. Acklam, Sioux Falls; C. H. Metz and C. L. Russell, Spokane; W. S. Roberts and E. P. Burch, St. Louis; F. L. Allen and H. K. Kelch, Syracuse; C. H. Overlien and C. K. Fryer, Watertown, S. D.; J. H. Redden and L. J. Mumford, Winnipeg, and A. R. Hauschel of Odessa, Russia.

Mooch Heads Denver Dealers

DENVER, Jan. 30—Secretary Harry G. Mooch of the Rocky Mountain Auto Trades Association, has been appointed secretary also of the Denver Automobile Trades Association, with the added title of business manager of both bodies. This action was taken at a joint meeting of directors of the two organizations, following a meeting of the local directors to decide upon a successor for Secretary Edgar W. Johnson, who recently resigned to accept an important position beginning in February with the Norton-Buick Auto Co.

The plan of combining the office of secretary is to reduce the necessary rent and other office expenses, and also to save time in handling trade problems common to both Denver and the outside territory. New quarters have been leased at 1628 Broadway.

Hartford Auto Parts Elects Directors

HARTFORD, CONN., Feb. 3—At the annual meeting of the Hartford Auto Parts Co. last week the following directors were elected for one year: J. H. Trumbull, Trumbull Electric Co., Plainville, Conn.; C. C. Chamberlain, Blakeslee Forging Co., Plantsville, Conn.; H. H. Ensworth, L. L. Ensworth & Sons Co., Hartford; M. J. Unkelbach, Unkelbach & Perry, architects, New Britain, Conn.; J. M. Carney and H. W. Bigelow, Hartford Auto Parts Co. The old board of directors was re-elected at the meeting and the regular quarterly dividend of 1½ per cent, payable Feb. 15, was declared.

J. I. Case T. M. Co. Branch Managers Meet

RACINE, Feb. 4—The sixteenth annual branch managers' meeting of the J. I. Case T. M. Co. was held at the home office in Racine, Wis., Jan. 21 to 26. Thirty-one managers together with their assistants were in attendance from the various branches in both the States and Canada. Those in attendance were:

C. E. Kiser and W. W. Allen, Amarillo, Tex.; Owen J. Thomas and H. A. Caraway, Billings, Mont.; J. T. Atkinson and B. H. Tewksbury, Calgary, Can.; C. B. Shaw and H. B. Fountaine, Chicago; W. C. Lemmon and J. M. Green, Dallas; C. T. Bishop and C. F. Calame, Denver; J. H. Keegan and C. G. Pearse, Des Moines; August Hanson and Anton Jensen, Fargo; W. H. Burgess and J. A. Foreman, Indianapolis; W. C. Giberson and Geo. T. Coonley, Kansas City; F. E. Miller and E. A. Knight, Lansing; C. D. Wood and G. C. Work, Lincoln; C. M.

Green and J. B. Kirby, Louisville; C. Lodine and R. E. Thomas, Madison; J. E. Gardner and George Helms, Minneapolis; J. E. Burk and V. H. Huck, Nashville; Ellis Chadwick and W. B. Scrimshire, Oklahoma City; J. C. Work and Wm. A. Sterling, Oshkosh; A. G.

How Much Does It Cost to Drive-away Cars?

(Continued from page 51)

greater than this become unwieldy and the person in charge cannot give individual attention to the cars following.

It is certain that there is possibility for car abuse in conducting a drive-away, and this is decreased by decreasing the number of cars in any one instance.

The question of routes is a difficult one to solve, as this depends largely upon the time of the year and the condition of the roads. However, practically every car manufacturer has studied the overland outlets from his plant and provided route cards to almost any point. Dodge Brothers and Buick are notable examples of the above, and the others are following suit. The following are some of the typical routes:

On Page 51 are a few typical examples of drive-away routes both to the eastern and western parts of the country. A point that should be brought to mind is that it is often possible to ship part way by boat and

New York Representative for Hall

NEW YORK, Feb. 4—The R. D. King Motors Co. has been formed here to market Hall trucks and has opened headquarters in the Circle Building.

drive the balance of the way; or else to first drive part way and then ship the remainder of the distance by freight. This latter procedure is possible because of the fact that freight-car congestion is not so severe in many quarters as it is in Michigan.

The number of drive-aways during the coming season is bound to be greater than ever before, and the dealers are going to strike a certain amount of antagonism against cars delivered in this manner.

However, dealers that have been conducting drive-aways extensively during the past season state that this class of trade is greatly in the minority.

When it is a question of receiving a car thus delivered, or not at all, and the car so delivered is seen to be in good condition, the opposition quickly breaks down. And in the face of the fact that the drive-away method of delivery is a patriotic work, the dealer should plan to obtain his cars as much as possible by this means for the duration of the war.

80,000 in Attendance at Milwaukee Show

And All There on Serious Business— Segregation of Passenger and Commercial Cars a Feature

MILWAUKEE, Feb. 2—The results obtained by Milwaukee distributors and dealers who exhibited at the tenth annual Milwaukee show, which was held at the Auditorium from Jan. 16 to 26, inclusive, were much more favorable than had been anticipated, in view of the abnormal conditions under which all business is obliged to pursue its course.

The total attendance for the 10 days was approximately 80,000, compared with 70,259 admissions at the 7-day combination show held in January, 1917. It is estimated that 50,000 saw the passenger car section and 30,000 inspected the truck show.

The admission fee to the passenger car show was 50 cents, and each required the payment of a 5-cent war tax. Admission to the truck show was by card only, but no admission fee proper was charged. Exhibitors were furnished with a liberal supply of cards, upon which they wrote the name of the person to whom each was issued. It was an easy matter for the exhibitor to check up on responses to his invitation by looking over the returns coming to the gates. The plan of segregating passenger and commercial car displays, which was born of necessity, proved to be a great success in every way.

Obtain Prospect List

Exhibitors in the passenger car section report that through this medium they have obtained a list of prospects that will approach more closely to a "100 per cent" mark of purchases than at any previous show. The reason undoubtedly is that those who attended came there for serious business and not merely to fill a social obligation or to "see the sights."

There was a new visitor this year. He was the man who two, three or four years ago was working for \$2.50 to \$3 a day and to-day is earning \$5 to \$7 a day—of 8 hours. This visitor had not attended previous shows because he was not a buyer of motor cars in former days. To-day he and his fellows in like improved financial circumstances are probably the best and most numerous prospects available to the Milwaukee dealer.

The Milwaukee show, like others, is not a grand retail selling proposition in the meaning that exhibitors do nothing but sit at their desks or tables in exhibit booths and take orders and the cash. Nevertheless, a fair number of cars actually are sold on the floor, to the extent of signed orders.

Exceptional opportunity was afforded dealers this year to demonstrate the utility of passenger cars under extreme conditions by the fact that just prior to the opening of the show a great blizzard

struck Milwaukee, supplementing two lesser snowstorms.

Accessory and supply dealers exhibiting at the show expressed themselves as gratified over results.

The truck show occupied about 90 per cent of the space used by the passenger car exhibition. On the night from Wednesday until Thursday morning at 10:30 o'clock the passenger car show was moved completely out of the building and the commercial car exhibits installed. It was a remarkable transformation made in record-breaking time.

The attendance at the truck show was "hand-picked." There was no admission charge, but entrance could be gained only with a card of credential from an exhibitor. Thus those who came were men known to be vitally interested in commercial vehicles. Unlike the passenger car show, many sales actually were made on the floor. Dealers in delivery car attachments for old passenger car chassis did a land-office business. The interest of visitors surprised everyone.

Henceforth Milwaukee shows will be continued in two distinct sections, the experiment this year having been a thorough-going success. And, in addition, there is not a distributor or dealer in passenger or commercial cars, accessories, etc., who would have remained out of the show for any amount of money.

HELP WIN THE WAR BY OPERATING YOUR AUTOMOBILE EFFICIENTLY



Don't leave the engine running to prevent freezing when machine is stopped at the curb. Put non-freezing solution in the radiator.



Don't engage clutch sharply, apply brake harshly, nor round corners at a high rate of speed.



Have small cuts in tire tread that reach into fabric sealed immediately.



Use non-skid chains when streets are slippery and take them off when not needed.



Don't adjust non-skid chains so loose that they fall off, nor so tight that they won't creep.



Keep accurate record of tire mileage and buy the make giving lowest cost per mile.



Don't keep engine racing when stopping in traffic.



Drive with spark advanced as far as possible without causing engine to knock.



Inspect oil level in engine, amount of water in the radiator, and pressure in tires each time before leaving the garage.



Don't take the engine apart just to see what is inside of it.



Learn what care the car requires, how to make minor repairs and adjustments, and how to get the best service from it by taking a course in the

WEST SIDE Y. M. C. A. AUTOMOBILE SCHOOL
318 WEST 57th STREET, NEW YORK CITY
Phone 778 Columbus

Leaflet sent out by Y. M. C. A. Automobile School

May Make License Law State Wide

New York Executives Favor Amend- ments Regulating Traffic and Use of Anti-Glare Device

ALBANY, N. Y., Feb. 4—Legislation making applicable to motorists throughout New York State the provisions of the Kelly-Cromwell law requiring all persons who drive motor vehicles in New York City to be licensed, and amendments to the headlight law empowering the Secretary of State to declare whether various anti-glare headlight devices comply with the law, have been approved at a conference on traffic and automobile regulation at the headquarters of the New York State Conference of Mayors at Albany.

The conference approved two amendments to the general highway traffic law. The first provides that unless otherwise directed by a traffic officer, or police sign, when a trolley car is stopped or running, a vehicle traveling in the same direction must not pass to the left of the car. This does not apply, however, when one or more tracks are on the side of a highway. While this is the intent of the present law it is not so clearly stated. The other amendment limits the prohibition against the use of gongs, sirens and whistles to those generally adapted for use on fire department apparatus. Both amendments have already been introduced by Assemblyman Welsh of Albany in the Assembly and Senator Knight of Wyoming county.

Amendments to the motor vehicle law were approved favoring a speed regulation for cities and villages of more than 300 inhabitants, prohibiting a speed of 25 miles an hour and declaring a rate of not exceeding 15 miles an hour to be regarded as "a safe rate of speed."

The conference agreed that no effort should be made this year to obtain the passage of legislation regulating pedestrians. The State Conference of Mayors was requested to draft a model code of ordinances regulating pedestrians and recommend its adoption by the cities of the state.

Emil Grossman Corp. Not Affected

Editor Motor World: Please publish the following announcement relating to the Government taking over the Bush Terminal property in South Brooklyn: "Announcement has been made in the daily press that the Government has taken over the Bush Terminal property in South Brooklyn. Inasmuch as we are located in Bush Terminal Building No. 20 a number of our customers have asked us in what way this will affect our business. We wish to state that the Government has only taken over the Bush docks and warehouse buildings. This does not in any way affect the industrial building in which we are located. We will be in a position to make prompt shipments."—Emil Grossman Mfg. Corp., Brooklyn, N. Y.

Your Responsibility

TO win this war we must do things; do them quickly, with less man power, with less waste. It means increased activity per individual and increased activity for each piece of equipment.

We are not attaining maximum activity. We are not using each piece of equipment to its utmost extent.

The great arteries of transportation are overburdened, and not all the efficient control by the Government, nor the wisdom of the railroad men can enable these arteries of transportation to carry all the material and goods which are offered to them.

The motor car and truck are the most flexible means of transportation. They can go where railroads cannot go. They can be used with ease in one direction or another to relieve temporary congestion. They can be employed more effectively, and offer a much larger tonnage of movement.

Every dealer in every city in the United States engaged in the automotive business has a responsibility reaching much further than the sale of his goods.

Intimately acquainted with the practicable possibilities of the motor car and truck, he can, by study of the local situation and necessities of local transportation conditions, become a center of constructive planning and co-operation, so that relief measures can be promptly applied.

Unless we do it, the Government must do it, without the knowledge of local conditions which are necessary to a proper solution.

All it needs is thought, planning, getting together of the local business men and operating.

It is up to us to lead the way in constructive measures for relief.

Fuel Situation Critical in Detroit

DETROIT, Feb. 5—The fuel situation is becoming more critical every day. The Maxwell, Paige, Chalmers and Studebaker factories will have to close to-day unless a supply of coal arrives. The Lincoln Motor Co., which is making Liberty engines, has enough coal to last 7 days, the Ford Motor Co. enough for 13 days and the Packard Motor Car Co. has 10 days' supply. Many homes in Detroit are without fuel and the weather is below zero. The gas company has coal for only a few weeks. If no relief comes before that time every engine testing department, enameling oven and all other work depending on gas will have to be stopped.

Toback Heads Redden

CHICAGO, Feb. 5—Samuel S. Toback, who quite recently was appointed general manager of the Redden Motor Truck Co., has been elected to the presidency of the company.

Chicago Salon Reflects Optimism

CHICAGO, Feb. 5—Chicago's salon in the Elizabethan room of the Congress Hotel reflects the same spirit of optimism that is noticeable at the Coliseum, and between fifty and sixty cars were sold. The attendance this year was better than in 1917. The salon exceeded all

expectations in the number of visitors as well as the amount of business done. The Elizabethan room permitted the exhibition of only 20 cars, as against 80 in New York. Unless war conditions make it impossible, space next year will be doubled or tripled.

MacFarland Heads Denver Civic Body

DENVER, Jan. 26—For the first time in the history of Colorado's capital, a representative of the motor car industry has been chosen president of the Denver Civic and Commercial Association. That honor was conferred this week upon Finlay L. MacFarland, president of the MacFarland Auto Co., Buick distributor for Colorado and Wyoming. MacFarland's standing in the motor industry has also won national recognition, and he has just been appointed to represent the Rocky Mountain territory as a member of the United States War Industry Board at Washington. He will there be one of fifteen business men to serve in handling the problems of motor car distribution during the war.

Detroit Short of Gas

DETROIT, Feb. 3—Between 8000 and 10,000 men had to be laid off Saturday temporarily by a score of manufacturing concerns engaged in war work owing to a shortage of gas. Conditions are so

acute that unless the gas company receives the needed coal and gas within the next 36 hours, 100,000 or more workers will be compelled to remain idle, as nearly all the local plants are short. At the Ford Motor Co. about 4000 men were laid off Saturday.

Duesenberg Buys Fiat Plant

NEW YORK, Feb. 5—The Duesenberg Motors Corp., Elizabeth, N. J., has purchased the buildings and equipment of the Fiat Co., Poughkeepsie, N. Y., and will commence immediately the removal of the bulk of the equipment to its Elizabeth plant. The Fiat company will continue to occupy a part of the buildings and the production and assembly of Fiat cars will go on much as usual.

The Duesenberg company has purchased this property and equipment in order that it might obtain immediately a large amount of machinery with which to carry on the production of airplane engines for the Government. At the present time Duesenberg is concentrating its entire manufacturing facilities on the production of Bugatti airplane engines for which it has a large contract. The production of Duesenberg engines has been entirely stopped though at some future time arrangements may be made with some western engine builder to manufacture the small four Duesenberg.

The Fiat company states that it has no intention of stopping the manufacture of cars and that this work will be carried on immediately with but little interruption.

Pennsylvania Farmers Own 19 Per Cent

HARRISBURG, PA., Feb. 4—Nineteen per cent or 58,766 of the 306,001 pneumatic-tired motor cars licensed in Pennsylvania during the past year are owned by farmers. These figures, just announced by the Pennsylvania Department of Agriculture, show that 27 per cent of the farmers of the state possess cars and that during 1917 the sales in the rural districts increased fifty per cent over the previous year. In some districts as high as forty and forty-five per cent of the farmers own cars. Two years ago there were about 20,000 automobiles owned by farmers, a year ago 30,700 and this year starts off with close to 60,000.

These cars are used for farm business during the day and for family jaunts at night or on holidays and Sundays. At the same time the farmers own 4435 motor trucks as compared with 2100 a year ago.

Canton Garages Organize

CANTON, ILL., Feb. 6—Garage owners met this week and organized the Canton Garage Men's Association, electing officers as follows: President, A. R. Street; secretary, J. T. Jelley; treasurer, M. McCatchey.

Copper County Show April 17 to 20

CALUMET, MICH., Jan. 5—The Copper County Automobile Dealers and Garage Owners' Association will hold its annual Upper Peninsula automobile show in the Colosseum from April 17 to 20.

More Dealers Adopt Strictly Cash Basis

Both Calumet County and Pueblo Associations Banish Old-Fashioned Open Accounts

CHILTON, WIS., Feb. 4—The Calumet County Automobile Dealers' Association was formed at a meeting of the owners of fourteen garages at Hilbert, Wis., with these officers: President, Harry Hass, New Holstein; secretary, Wilmer E. Bishop, Hilbert; treasurer, Robert Hippe, Chilton. The association adopted the following rules to govern all members:

1. Hours for doing repair work to be from 7 a. m. to 6 p. m. Workshops close at 6 p. m., and garages at 9.30 p. m.
2. All garages to remain closed on Sundays, excepting in an emergency case of breakdown or accident.
3. Charges for expert repair work, 75c. per hour; helpers, according to ability. Time and a half will be charged for overtime and Sunday work.
4. Towing charges: \$1 for first mile; 75c. for second mile, and 50c. for each mile thereafter.
5. Charges for burning out carbon from cylinders, 75c. per cylinder.
6. Storage charges, 50c. per night or day; regularly monthly charges, \$2.50 to \$5.
7. Storage battery recharging, minimum, \$1 for single refill; winter storage, 50c. per month.
8. All repair work must be settled for before cars leave garage.

The agreement is signed by the following named concerns:

Hippe Motor Car Co., Chilton; John Binsfeld, Chilton; Halefrich Auto Supply Co., Reedsville; Meili-Blumberg Co., New Holstein; George Duchow, Potter; New Holstein Motor Car Co., New Holstein; Auto Sales Co., Hilbert; Hilbert Auto Co., Hilbert; Piepenburg & Aebert, Reedsville; Hinges & Son, Kiel; Brillion Auto Co., Brillion; Fred Thiessen, Kiel; Calumet Auto Co., Brillion; Steffes & Steffes, Chilton.

Pueblo Association On a Cash Basis

PUEBLO, COL., Feb. 1—The Auto Trades Association of Pueblo has from this date gone on a strictly cash basis except for out of town business, where customers are given sufficient time to audit and voucher their accounts. A clearing house has been established where dealers may purchase coupon books for cash. These are sold to customers for cash and the coupons are accepted at any garage, supply house, gasoline station or shop. Plans are being made to extend the system throughout the state.

The association has just completed its first year. Twenty-two members formed the nucleus of the organization and, while no attempt was made to bring about all needed reforms at once, it was found that differences adjusted themselves automatically as soon as the dealers become better acquainted, and a good co-operative spirit now exists.

Patriotic work has been an important feature of the association's activities.

The Automobile Committee of the Liberty Loan booked \$15,000 in subscriptions. A fund for Christmas gifts for our soldiers overseas was started through a dance held in the new Ford garage and resulted in the purchase and forwarding of 1015 packages to France at a cost of \$1,810. In November another entertainment provided an ambulance for the local Red Cross Chapter, together with a fund for oil, gasoline, tires and storage for one year.

Altogether the association is decidedly up and doing, and is already one of the most active of its kind in the West.

License Fuel Oil Dealers

WASHINGTON, Feb. 5—Manufacturers and distributors of fuel oil with gross sales of more than 100,000 barrels a year after Feb. 11 must obtain Federal licenses to do business. Although there is an abundant supply of oil, transportation difficulties have made such action necessary and President Wilson has taken this step. The distribution of fuel oil is to be under the direction of the oil division of the Fuel Administration headed by Mark L. Requa. There is no intention to extend this emergency measure to cover gasoline and kerosene which are not included under the term fuel oil.

Coincident with the President's proclamation Fuel Administrator Garfield has made public the following list which will govern priority of deliveries:

- 1—Railroads and bunker fuel.
- 2—Export deliveries or shipments for the U. S. army or navy.
- 3—Export shipments for allied navies and other war purposes.
- 4—Hospitals where oil is used for fuel.
- 5—Public utilities and domestic consumers now using oil (including gas oil).
- 6—Shipyards engaged in government work.
- 7—Navy yards.
- 8—Arsenals.
- 9—Plants engaged in manufacture, production and storage of food products.
- 10—Army and navy cantonments where oil is now used as fuel.
- 11—Industrial consumers engaged in munition manufacture and other articles under government orders.
- 12—All other classes.

More Trucks Than Ever At Motor Car Shows

Bigger Space Being Given Merchandise Movers—Many Shows to Have Them First Time

Trucks and tractors this year are forming a very important feature of motor car exhibits throughout the country—just how important is indicated by statistics gathered by Motor World from the managers of the principal current automobile shows.

The space allotted to commercial vehicles is much greater than ever before; in some cases two, three and even four times as great, and in one instance, where 20,000 sq. ft. of total floor area is devoted to this class, the tractors alone occupy eight times their last year's allotment.

Not content with this encouraging recognition by the big show authorities several commercial vehicle dealers are holding shows of their own. Two of these have already taken place in Milwaukee and Des Moines, and Bridgeport will hold another beginning March 25. That at Milwaukee occupied 40,000 sq. ft., four times as much as last year.

The Cleveland and Lancaster, Pa., shows included trucks and tractors this year for the first time, the manager having seen the trend of the times and the success of such a course at other shows. At Wilmington, Del., lack of space alone prevented the inclusion of the commercial vehicle with the passenger car. Doubtless next year steps will be taken to provide additional accommodations.

It is certain that the public interest in the exclusively utilitarian side of the motor industry is bringing about revolutionary changes in show ideas. We no longer speak of a pleasure car. The passenger car is a necessity. The truck and the tractor are at the very foundation of modern industry.

Shows That Have Truck Exhibits

Place	Space	Increase over last year
Boston, Feb. 27-March 6	60,000 sq. ft.	Same.
Detroit, Jan. 19-26	One-third of show, 25,000 sq. ft.	25%
San Francisco, Feb. 16-24	25,000 sq. ft. Separate building.	
Cleveland, Jan. 19-27		First time shown.
Newark, N. J., Feb. 16-21	One-third total space, main floor.	
Minneapolis, Minn., Feb. 2-9	20,000 sq. ft. main floor.	Trucks, 20%
Oklahoma City, Jan. 22-26	One-fourth total space.	Same
Portland, Ore., Jan. 21-26	20,000 sq. ft.	Tractor 800%
San Joaquin	One-fourth total space.	12½%
York, Pa., Jan. 21-26	10 per cent total space.	Same
Harrisburg, Jan. 26-Feb. 2	10 per cent total space.	
Syracuse, N. Y., Feb. 18-23	One-fourth total space, main floor.	50%
Providence, Jan. 11-19	One floor	
Lancaster, Pa., Feb. 6-9	Part of one floor.	First time shown.
Trenton, N. J., March 20-29	10 per cent of space.	
Rochester, Jan. 14-19	One-fourth total space.	50%
Kalamazoo, Jan.	One-fourth total space.	50%
Omaha, Feb. 23-March 2	One floor	
Buffalo, Jan. 21-26	A few trucks only.	
	A few trucks only Exhibited by members of association who handle no passenger cars.	
Milwaukee, Jan. 23-25	40,000 sq. ft.	400%
Des Moines, Jan. 18-24	30 trucks	+
Bridgeport, March 25	10,000 sq. ft.	100%

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Frank B. Willis has resigned from the presidency of the Hal Motor Car Co., Cleveland. Reasons for his resignation have not been made public, nor has he disclosed his future plans.

A. P. Warner, president of the Warner Lens Co., Chicago, was elected president of the Bailey Non-Stall Differential Corp., Chicago, at the annual meeting held here to-day. George D. Aibley was elected vice-president, J. E. Duffield, general manager and treasurer, and C. E. Ferguson, secretary. Besides the officers, A. D. Lasker and George Stroh, Jr., are members of the board of directors.

V. I. Shope has been made sales and advertising manager of the Zenith Carburetor Co., succeeding A. H. Doolittle, recently resigned. Shope was formerly New York branch manager.

R. M. Hernandez, for ten years with the United States Tire Co. in the Central States District, has been appointed Central District Manager of the Carlisle Cord Tire Co., Inc. His headquarters will be at Chicago.

H. G. Ault has been named by the General Tire & Rubber Co., Akron, to head its reorganized sales department covering tire accessories and repair materials. Ault has been connected in a similar capacity with the Firestone Tire & Rubber Co.

C. W. Whitston has joined the sales force of the Fulton Motor Truck Co., with headquarters in Chicago. Immediately after the Chicago show he will be assigned to the position of district sales manager.

W. H. Oliver, Jr., is now connected with the Taft-Pierce Mfg. Co., Woonsocket, R. I. He was formerly chief engineer of the Hyatt Roller Bearing Co. and recently with the Russel Motor Axle Co.

Z. K. Carson has been appointed Sales-manager of the Gray-Dort Co. of Chatham, Ont.

W. B. Cochrane has been appointed Pacific coast sales manager for the United States Motor Truck Co., Cincinnati. Cochrane was formerly with the Haynes Automobile Co. and the General Motors Truck Co.

Ralph C. Smith has resigned as Eastern sales manager of the Reo Motor Car Co. to become sales manager of the Anderson Tire Mfg. Co., Washington, D. C.

William D. Paine, York, Pa., who has been Eastern district sales manager for the Saxon Motor Car Co. for the last ten months, has been commissioned a captain in the Ordnance Officers' Reserve Corps, and is awaiting his call to active service.

William M. Crotty, for seven years manager of the Chicago branch of the New York Lubricating Oil Co., has been appointed sales manager of the motor oil department of the Continental Oil Products Co., Chicago.

A. A. Lightfoot has been promoted from the position of Pennsylvania representative of the Marathon Tire & Rubber Co. to that of division manager at Chicago. He succeeds H. F. Smith, who has resigned.

H. F. Harris has resigned as assistant branch manager of Willys-Overland, Inc., New York, and on Feb. 15 will become industrial engineer of the Republic Motor Truck Co., Alma, Mich.

George K. Parsons has been appointed manager of the new Detroit branch factory of L. V. Flechter & Co., and will have charge of all factory sales. He was formerly national distributor of the Disco Self-Starter

Corp. and connected with the sales organization of the Ford Motor Co.

C. E. MacConnell has been appointed sales representative of the Hyatt Roller Bearing Co., Detroit. He was formerly advertising manager of the Detroit branch of the Goodrich Rubber Co.

W. L. Walls has been appointed sales manager of the King Motor Sales Co., Detroit, succeeding C. J. Welch, who recently resigned. He was formerly district manager for the company in Michigan.

Tom Orr, former racing driver for the Maxwell Motor Co., Inc., and until recently a member of its truck sales department, has been commissioned a captain in the tractor division of the ordnance reserve corps.

O. R. Hardwell, former advertising manager of the Chalmers Motor Co., Detroit, now has the Iowa territory for the Willys-Overland Co., which he represents as special sales representative.

A. G. Dale has been appointed western sales manager of the King Motor Car Co., Detroit.

G. F. Knowles, sales engineer of the Federal Motor Truck Co., Detroit, is leaving for Washington, D. C., where he will handle sales engineering and all national business with the government for the Federal company for the duration of the war.

V. K. McBride, former assistant sales manager of the Federal Motor Truck Co., Detroit, has been appointed a captain in the ordnance department at Washington.

Thomas S. Watson, president of the Thomas S. Watson Co., consulting engineer and electrical expert, Milwaukee, has been commissioned a major in the ordnance officers' reserve corps and left for Washington last week to engage in active duty. Maj. Watson came to Milwaukee from Spokane, Wash., in 1900 and became electrical engineer of the Mechanical Appliance Co. Later he organized the Watson company. During the last two years he occupied an important advisory and consulting position with the Link Belt Co., Chicago, Philadelphia and Indianapolis.

Maj. Frank R. Bacon, Milwaukee, president of the Cutler-Hammer Mfg. Co., who several months ago was called to active duty in the ordnance officers' reserve corps and placed in charge of the New Haven (Conn.) district, has been transferred to Washington, D. C.

William H. Alexander, assistant general manager of the Marvel Carburetor Co., Flint, Mich., who was in charge of experimental work in the engineering department, has been called to serve in the aviation section of the signal corp.

Jobbers Would Omit One Spark Plug Size

Bank Standardization Committee Suggests Names and Would Drop the 3-4-In. Type

CHICAGO, Feb. 1.—The Standardization Committee of the National Association of Automobile Accessory Jobbers is endeavoring to improve the situation in the field of spark plug manufacture. It held a meeting here this week at which standard names for types were advocated in a council of Champion, Rajah, Grossman, A. C., Bethlehem, and Splitdorf plug makers. F. T. Andrae, Milwaukee, is chairman of the committee.

Instead of saying "standard" or "regular," the committee recommends the use of the word "regular." Instead of "extension" the terms "long" and "extra long" are recommended.

The committee also has in hand the matter of eliminating if possible the use of a ¾-in. size. It is stated that this is used in some motors and an investigation is to be conducted to see if fewer sizes will not suffice. The principal sizes otherwise are the "regular," "long" and "extra long" in ½-in., ⅝-in. and metric sizes. The retention of the metric size is recommended as a step toward securing after-war business abroad. The ¾-in. plug is said to be used mostly in farm implement and tractor trades.

Case Has New Branch Managers

RACINE, Feb. 4.—The J. I. Case T. M. Co. has appointed five new branch house managers. J. H. Keegan, who for the past 12 years has been branch manager at Chicago, will assume control of the Des Moines, Iowa, branch. C. B. Shaw will take charge of the Chicago branch. C. E. Kiser will assume the duties of branch manager at Amarillo, Tex. W. H. Burgess has been advanced to branch manager at Indianapolis. C. T. Bishop is now branch manager at Denver.

Motor Security Quotations

	Bid	Asked		Bid	Asked
*Ajax Rubber Co.	46	55	*Maxwell Motor Co., Inc., 1st pfd.	60	61
*J. I. Case T. M. Co., pfd.	77	81	*Maxwell Motor Co., Inc., 2d pfd.	22	23
Chalmers Motor Co., com.	3	5	Miller Rubber Co., com.	129	134
*Chalmers Motor Co., pfd.	25	40	Miller Rubber Co., pfd.	95	96
*Chandler Motor Co.	82	83	Packard Motor Car Co., com.	85	90
Chevrolet Motor Co.	119	121	Packard Motor Co., pfd.	91	94
*Fisher Body Corp., com.	26	35	Paige-Detroit Motor Car Co.	16	18
*Fisher Body Corp., pfd.	80	87	Peerless Truck & Motor Corp.	16	17
Fisk Rubber Co., com.	49	51	Portage Rubber Co., com.	108	112
Fisk Rubber Co., 1st pfd.	98	103	Regal Motor Car Co., pfd.	23	23
Fisk Rubber Co., 2nd pfd.	60	70	*Reo Motor Car Co.	16	18
Firestone Tire & Rub. Co., com.	95	98	*Saxon Motor Car Corp.	9½	11
Firestone Tire & Rub. Co., pfd.	95	97	Springfield Body Corp., com.	..	..
*General Motors Co., com.	134½	136½	Springfield Body Corp., pfd.	..	..
*General Motors Co., pfd.	85	89	Standard Motor Construction Co.	9	11
*B. F. Goodrich Co., com.	47	49	Standard Parts Co.	72	80
*B. F. Goodrich Co., pfd.	97	100	*Stewart-Warner Speed Corp.	51	52
Goodyear Tire & Rub. Co., com.	132	136	*Studebaker Corp., com.	53	54
Goodyear Tire & Rub. Co., pfd.	97	100	*Studebaker Corp., pfd.	91½	97
Grant Motor Car Corp.	2	3	Swinehart Tire & Rubber Co.	35	40
Hupp Motor Car Corp., com.	2½	3	United Motors Corp.	25	25½
Hupp Motor Car Corp., pfd.	75	80	*U. S. Rubber Co., com.	57	58
International Motor Co., com.	14	17	*U. S. Rubber Co., pfd.	98	101
International Motor Co., 1st pfd.	40	45	*White Motor Co.	41	42
International Motor Co., 2nd pfd.	14	17	*Willys-Overland Co., com.	18½	19
*Kelly-Springfield Tire Co., com.	46	47	*Willys-Overland Co., pfd.	78	79½
*Kelly-Springfield Tire Co., 1st pfd.	75	80½	*At close Feb. 2, 1918. Listed N. Y. Stock Exchange.	..	..
*Lee Rubber & Tire Corp.	14	15	†Par value \$10.	..	..
*Maxwell Motor Co., Inc., com.	28	29			

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

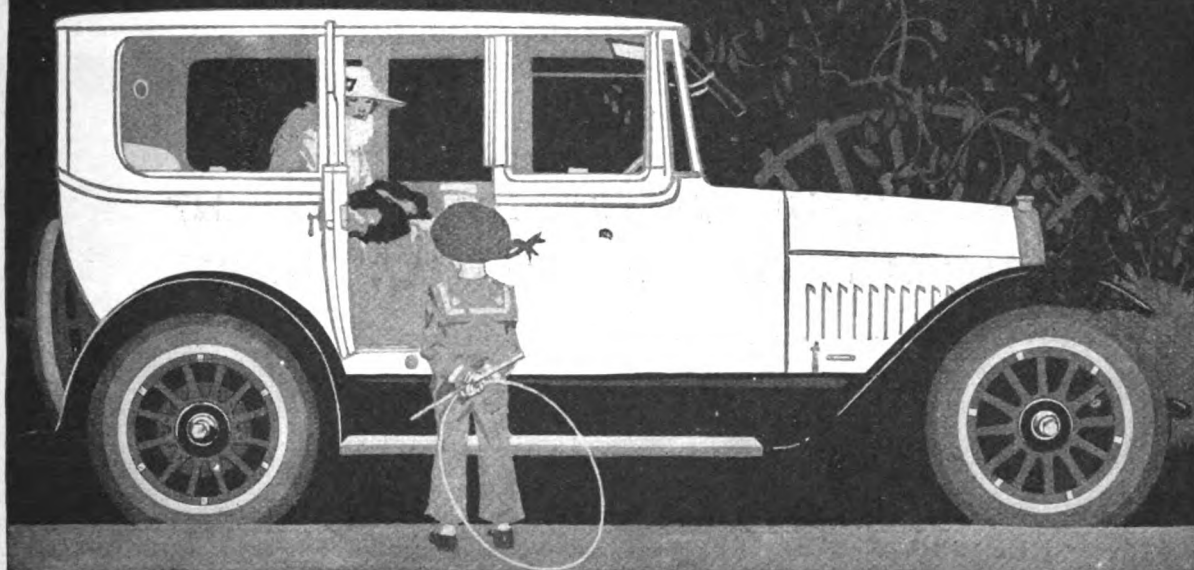
Tulsa, Okla.....	Tulsa Automobile Dealers' Assn.....	February
Peoria, Ill.....	Peoria Auto Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Kalamazoo, Mich.....	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9
Bronx, N. Y.....	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.....	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.....	Automobile Trade Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.....	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 7-13
Kansas City, Mo.....	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Elmira, N. Y.....	Elmira Automobile Club. State Armory.	Feb. 11-16
Kansas City, Mo.....	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.....	St. Louis Auto Mfrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 18-23
Toledo, O.....	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17
Ft. Wayne, Ind.....	Automobile Trade Assn., Concor-dia Gymnasium.	Feb. 18-16
Hartford, Conn.....	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.....	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.....	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.....	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.....	United Shows Co.	Feb. 18-29
Syracuse, N. Y.....	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-29
Grand Rapids, Mich.....	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-24
Duluth, Minn.....	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.....	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.....	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-29
Nashville, Tenn.....	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.....	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.....	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Quincy, Ill.....	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-29
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars, Trucks.	Feb. 23-Mar. 2
Muskegon, Mich.....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Columbus, O.....	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2
Burlington, Ia.....	Cars, trucks and accessories.	Feb. 27-Mar. 2
Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Lyons, France.....	Third Sample Fair.	Mar. 1-15
Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston.....	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Utica, N. Y.....	Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.	Mar. 4-9
Clinton, Ia.....	Clinton Automobile Dealers' Ass'n., Coliseum.	Mar. 6-9
Raleigh, N. C.....	Auditorium. John Kelley, Mgr.	Mar. 6-9
Mason City, Ia.....	Annual Car and Truck, Automobile Dealers' Assn.	Mar. 6-9
St. Joseph.....	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.....	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Green Bay, Wis.....	Brown County Automobile Trade Assn.	Mar. 8-11
Cedar Rapids, Ia.....	Cedar Rapids Auto. Trade Assn., Auditorium.	Mar. 11-16
Fargo, N. D.....	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15
Fort Fairfield, Me.....	Reed's Garage. R. F. Reed, Mgr.	Mar. 14-16
Great Falls, Mont.....	Montana Automobile Distributors, Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
Vancouver, B. C.....	Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.	Mar. 19-23
San Francisco, Cal.....	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Holdrege, Neb.....	Second Annual of Southwest Nebraska.	Mar. 20-23
Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Bridgeport, Conn.....	Sixth Annual Cars and Trucks, Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.	Mar. 25-30
Atlantic City, N. J.....	Second Annual, Garden Pier. W. W. Garabant, Mgr.	Mar. 30-Apr. 6
Hartford, Conn.....	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6
Red Bank, N. J.....	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Stockton, Cal.....	Third Annual San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Calumet, Mich.....	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-24
Hot Springs, Va.....	Convention National Association of Automobile Accessory Jobbers.	June 5-12

Conventions

Hot Springs, Va.....Convention National Association of Automobile Accessory Jobbers.

National

TWELVE CYLINDER CARS



STAMINA THAT IS ECONOMY

THE immediate success met by this new twelve-cylinder National Touring Sedan constitutes a splendid recognition of the fact that true war-time economy is a matter of efficiency.

No more would we think of limiting the strength, the ability, or the convenience of this practical traveler than we would of suggesting that the equipment of our troops overseas be curtailed.

These times test the soundness of every man's economy-doctrine, and they emphasize

the wisdom of the dealer who sells and of the customer who buys this car in which stamina is the source of important savings.

With either the six- or twelve-cylinder airplane-type engine, it is a trustworthy car for all purposes; staunchly built to meet the exactions of shrewd judges and of long, varied service.

Its fuel, tire, and maintenance costs are surprisingly low.

The versatility of the carriage of this National, easily closed for winter or opened for sum-

mer, is enjoyed without sacrifice of touring range.

It affords the advantages of a cold weather equipage and of a warm weather tourist at the cost of one car.

The new National spreads its inherent utility and economy over the entire year and thus, from its initial cost, it yields the utmost in service-value.

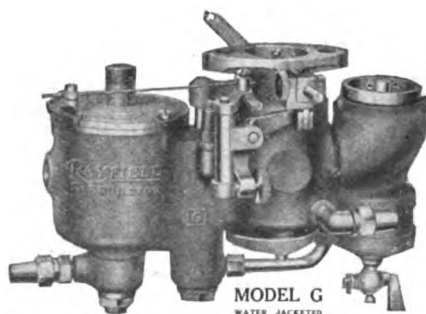
Behind these economy-facts the prosperity of National dealers is firmly entrenched.

NATIONAL MOTOR CAR & VEHICLE CORPORATION - INDIANAPOLIS
Eighteenth Successful Year

National Dealers Now Offer Complete Range of Body Styles in Both

Six and Twelve Cylinder Models

7-Passenger Touring Car, 4-Passenger Sport Phaeton
4-Passenger Roadster, 7-Passenger Convertible Sedan



THE Rayfield is acknowledged to be the best carburetor on the market today.

It is best for all makes of cars.

It is best with all grades of fuel.

It is best in all kinds of weather.

Severe winter driving demonstrates Rayfield superiority. Poor carburetors are at their worst during zero spells.

Naturally, the Rayfield sells easiest during cold months.

Don't miss this opportunity the weatherman has brought you. Write us *now* for special proposition to dealers.

Findeisen & Kropf Mfg. Co.

2101 Rockwell Street, Chicago

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CARBURETOR

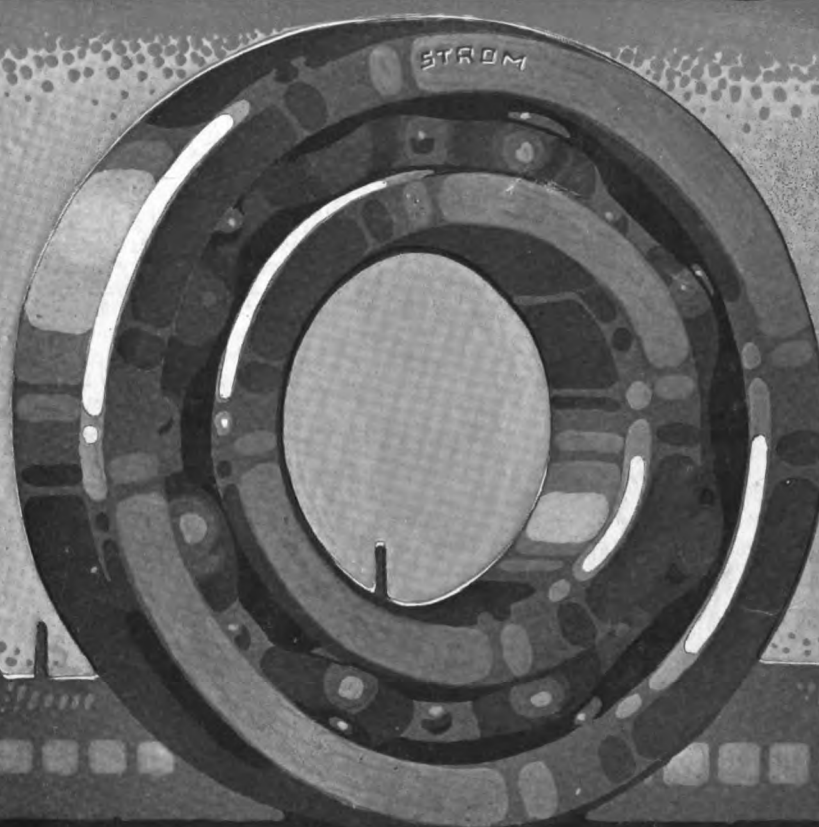
MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Volume LJV
No. 7

New York, February 13, 1918

Ten cents a copy
Two dollars a year



STROOM

BEARINGS

FORMERLY U.S. BALL BEARINGS

U.S. BALL BEARING MFG. CO. Conrad Pat. Licensee CHICAGO ILL.

A Tractor Of Highest Efficiency



*Pulls three 14-inch
plows with ease
and steers itself
while so doing.*

*Note the unusual
flexibility.*



*In discing, it does not
pack the ground—
yet pulls a big load.*

The Model D Bates Steel Mule is the result of six years' experience in building the most efficient 3-plow tractor made. It is based on the mechanical principles that have made the Bates Steel Mule a popular favorite on America's farms as well as on foreign soil.

The Model D is light but has a pull far in excess of the usual tractors in its class. This is due to three things—efficient valve-in-head motor, roller bearing transmission and crawler grip on the ground.

The Bates Steel Mule

FULLY PROTECTED BY PATENTS

REG'D U. S. PAT. OFF.

The Model D is propelled by two carefully made powerful crawlers. Has twelve ground-gripping cleats on each side—twenty-four claws always clinging to their footing. There's no slip there—no power wasted in back-slipping. Every ounce of power delivered to the crawlers means just so much strong, steady pull on the drawbar.

The motor is a distinct tractor type, heavy duty, four cylinder, valve-in-head, and is especially designed for burning kerosene, distillate, or other low grade fuels as low as 38° Baume test.

Pulls three plows at a speed of $2\frac{1}{4}$ to $3\frac{1}{2}$ miles per hour, and does it under very unfavorable footing conditions. Has nickel steel roller bearings throughout, and all working parts are totally encased against dust.

Its exceptional flexibility enables the operator to ride over any uneven ground comfortably. This flexibility also protects the tractor from any internal strains when working on rough plowed ground, a feature which not only assures longer life to the tractor but also contributes to its high efficiency because its bearings are always running in perfect alignment.

The front wheels are so placed that the machine steers itself when plowing by following the furrow wall.

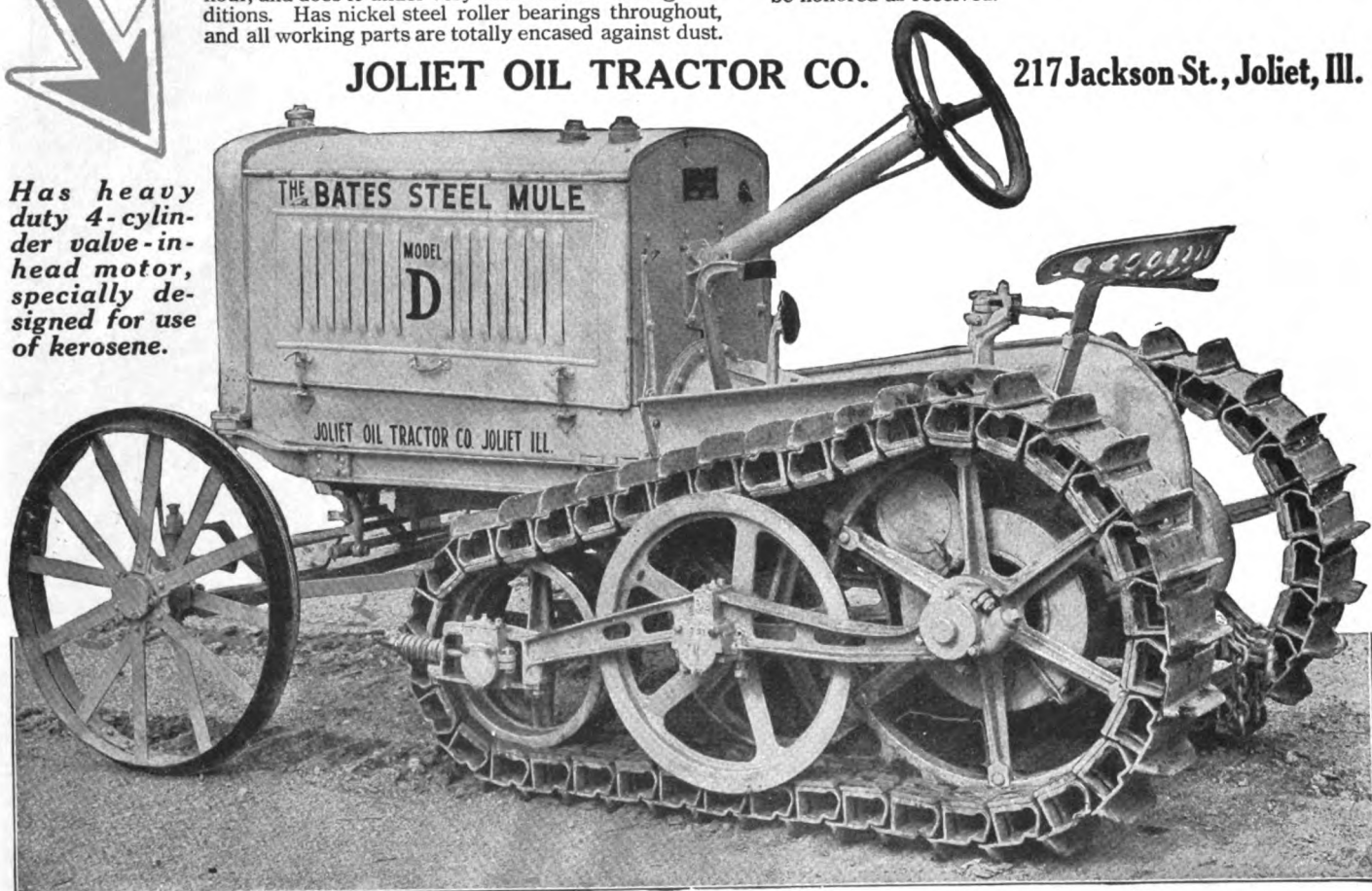
ONLY A FEW NEW DEALERS POSSIBLE

Increased manufacturing facilities enable us to supply a few more dealers than last year—but *only a few*. Orders will be honored as received.

JOLIET OIL TRACTOR CO.

217 Jackson St., Joliet, Ill.

*Has heavy
duty 4-cylinder
valve-in-
head motor,
specially de-
signed for use
of kerosene.*



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DEALERS, JOBBERS AND GARAGEMEN

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"NORMA" BALL BEARINGS

(Patented)



The difference in price between an ordinary ball bearing and the best ball bearing is never large. At most, it is but the tiniest fraction of a per cent of the total cost of a car or truck. But the difference in the service rendered may be tremendous—may mark the distinction between satisfaction and dissatisfaction.

"NORMA" Precision Bearings are the standard bearings in the high-grade magnetos and lighting generators because the makers of these accessories know from actual experience that the "NORMA" price is a premium on the safest insurance against bearing troubles.

Be sure. See that your
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 are "NORMA" Equipped



THE NORMA COMPANY OF AMERICA

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Selden Trucks



Massive construction—colossal strength—gigantic motive power—abundant speed in operation—proven power of endurance, with sufficient energy in reserve—these are the in-built qualities of SELDEN TRUCKS that give them the vitality to render continuous, profitable service to the user—uninterrupted service at low upkeep cost—the kind of service that brings repeat orders.

Three-quarter to Five Ton Models

WORM & INTERNAL DRIVE



Dealers: *There never was a time when a Selden agency was so valuable a possession to a dealer as it is to-day. All Selden dealers are doing a profitable business and building a reputation. Territory is being closed up fast. If Selden Trucks are not being sold in your territory, write at once for our proposition.*

Selden Truck Sales Company

Rochester, N. Y., U. S. A.



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When writing advertisers please mention Motor World—it identifies you

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LV

New York, U. S. A., Wednesday, February 13, 1918

No. 7

The Biggest Show In the World

How the Twin Cities Put On the First Real AUTOMOTIVE SHOW

By Ray W. Sherman

TWIN CITIES, MINN., Feb. 7—The Twin Cities, St. Paul and Minneapolis, have held the first automotive show ever held in the world.

It is also the biggest exposition ever staged by this industry. It is bigger than the New York and Chicago shows rolled into one. It is hard to tell about it. Newcomers who hear the story of the show on arriving in town think they are being kidded. The show is so big that even the Twin Cities dealers who staged it are astounded at the result.

Everything the Dealer MUST Sell

It is automotive. That means that it includes all those products that the successful dealer of the future MUST sell. There are cars, trucks, tractors, accessories for all three, gas engines, farm lighting outfits and farm power machinery plus garage equipment, business office appliances, one marine motor exhibit and two airplane exhibits, and in addition great quantities of foods, clothing, furniture, building materials and other things that the Great Northwest buys.

The dealers of the Twin Cities didn't have the word "automotive" in mind when they staged their show—but an automotive show is exactly what they have

brought about. They leaped far into the future and they leaped so far they didn't know where they were when they landed.

A short time ago the Society of Automobile Engineers, realizing the rapidly expanding condition of that industry that is founded on the gasoline motor, expanded itself to include all motive activities and became the Society of AUTOMOTIVE Engineers.

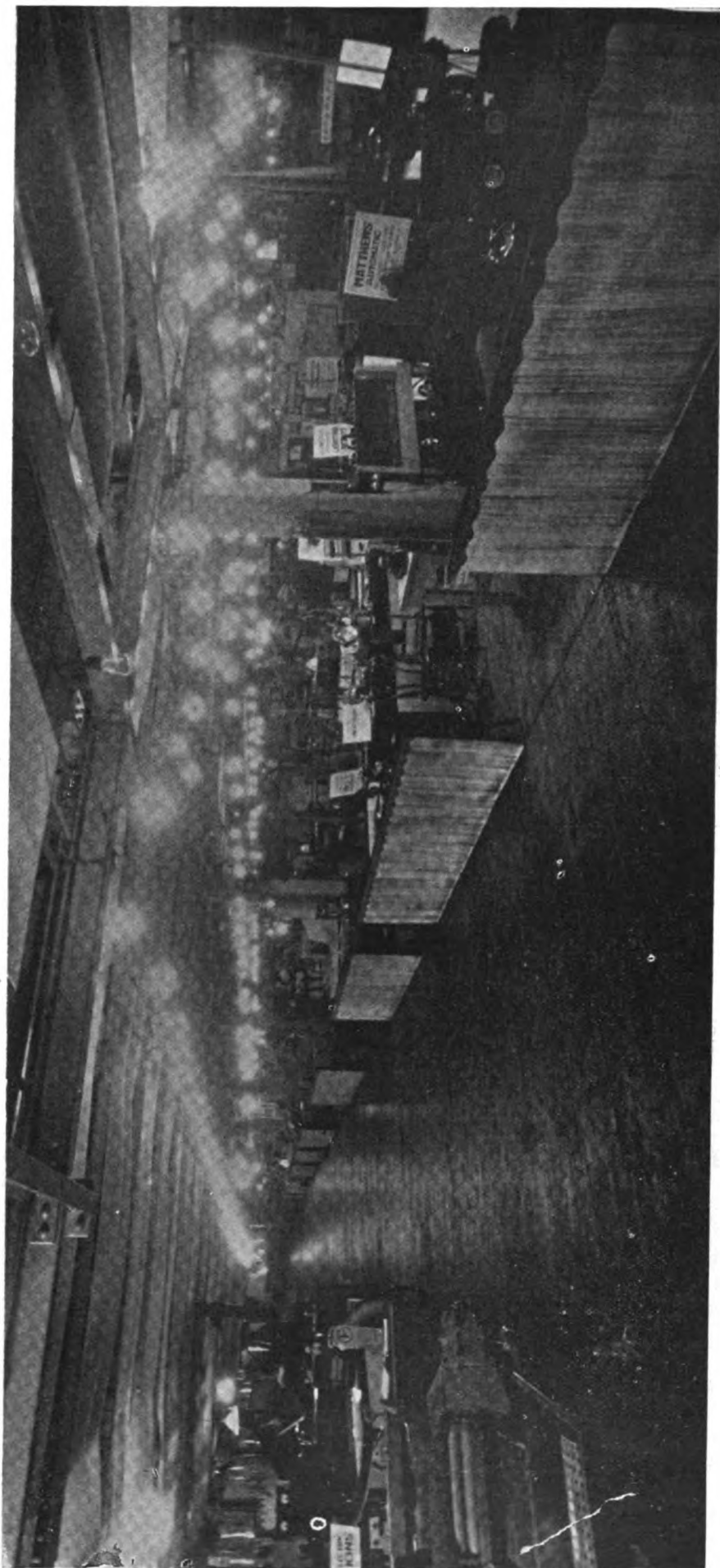
It was obvious that the dealers in cars would eventually do this same thing, that they would begin to handle all sorts of power machines, such as trucks, tractors, motorcycles, farm power machinery and many other things, but nobody expected the Twin Cities to take a running leap into the dim future and turn the trade inside out over night.

But that is exactly what has happened.

Lining Up on Automotive Basis

Not only are all the automotive products on exhibition—and then some—but the dealers of the Northwest are lining up on the automotive basis.

Several of the Twin Cities dealers have for a long time been handling both cars and trucks; more recently some have taken on tractors; many country



This is called "Industrial Section," but it might better be called "Business and Automotive Section." Here are farm lighting systems, tractors, trailers, farm machines

dealers are taking on farm lighting systems; others are looking into products that follow farm lighting, such as power washing machines, laundries, milkers, and others, and it may be expected this section will step some along automotive lines from now on.

The dealers have had the automotive idea thrust into their faces—and their eyes were not shut.

When one enters the big Overland building midway between St. Paul and Minneapolis—or rather two blocks inside St. Paul—he lands in the midst of a big room—about 200 x 160 ft.—filled with trucks. There is everything from the hitch-onto-a-Ford to 3- and 5-tonners.

If the dealer's feet don't get weary looking at the trucks he may—still on the same floor—pass into a room, 185 x 220, filled with tractors, all the way from little garden tractors to big oil burners that are as high as a house.

After he has seen all this he may climb specially built stairs to the second floor where he will find a room 185 x 220 filled with cars and with accessories around the side walls for a distance of a sixth of a mile. The dealer will walk a quarter of a mile in this one room if he sees it all.

He may then—still on the same floor—pass into another room 185 x 200 that looks like old times. There is nothing here but cars. Dealers here should take a last fond look while in this room, for the northwest probably never will see another exclusive motor car show. Henceforth they will be automotive.

After having seen his old friends, the cars and accessories, the dealer may ascend to still another floor where he will find a room 185 x 220 in which is a marvelous variety of things. The show management refers to this as an "industrial section"—but it isn't.

Automotive and Business Show

It is a combination of an automotive and a business show. Here are motor accessories, farm lighting systems, farm power machines, furniture, clothing, food, household appliances and many exhibits that make the northwest farmers and their housewives stop and make careful and interested inspections.

Having seen this—which is more of a job than seeing some whole shows—the dealer may pass into a sixth room where he will find a section of the floor used by Uncle Sam. The Food Administration has a big exhibit on food conservation with instructive exhibits. The Red Cross is showing how it operates in the field. The Fuel Administration is demonstrating why the plentiful tamarack is a good fuel. The St. Paul Association is by its exhibit advising farmers to dry and can co-operatively, and the four big flour mills of the Twin Cities are demonstrating war bread and giving away recipes.

"Let's Go and Eat"

By this time the dealer thinks he is all done and starts out. But on the first floor a friend says: "Let's go down stairs and eat."

"Eat?"

"Sure! Eat!"

The Automotive Dealer—Sure of a Load



THE one-horse dealer with his one-horse business is passing. The healthy business that we must have is the one that can still go on even if one horse goes lame. The **AUTOMOTIVE DEALER** is here. Read the story of the Minneapolis Automotive Show.

How Twin Cities Staged The

So into the basement they go and find a seventh big room, about 200 x 185, that makes the foot-weary dealer dizzy. On one side is a lunch room where eats are on the stand-up and sandwich basis.

On the other side is a regular restaurant with waitresses where a good meal is served for 80 cents. But the dealer discovers he can get the same meal for 60 cents if he serves himself so he buys a ticket for 60 cents and starts along inside a rail pushing a tray along a counter. Every few feet a woman dumps something on the tray and at the end a woman sets a cup of coffee on and a girl grabs his ticket, the man behind gives him a push and the dealer is alone in the world with a tray full of eats. He sits down at a table and eats.

Then he goes into a big moving picture show in this same basement where the Food Administration shows how not to waste and how not to eat too much.

My God! What a Show!

After that the dealer starts upstairs, but the crowd pushes him out onto a big smooth dance floor and he is at it before he knows it. When nearly exhausted he buys cigars in a young cigar store, takes on a few ice cream sodas and other things, staggers up the stairs, out into the street, is jammed into a street car and as he wilts on a strap has just breath enough to gasp:

"My God! What a show!"

Meantime the management, guarded by a flock of detectives, and assisted by tellers, is carting the show receipts around in canvas bags the same way little boys wearily tote walnuts.

The thing has broken all records from every standpoint.

Crowd Rushes the Gates

A thing that has made the eyes of the Twin Cities dealers stick out the farthest is the attendance. In the beginning the dealers were not sure they could successfully hold a show this year, but on Monday of the show the gate facilities went to pieces in the face of the jam and four directors of the association had to stand at the gate, take the money and pass the people in without tickets. And there are two box offices, too.

And a thing that has caused the general public of the Twin Cities to gasp a little is the fact that the motor car men of the two towns have effected the harmony that has been absent since the two twins were little babies. St. Paul and Minneapolis have always quarreled.

But the automobile men said this was all rot. They maintained that two big cities whose borders touch could do a darned sight more together than apart—so the automobile men went at it, and the result is that this is a Twin Cities show.

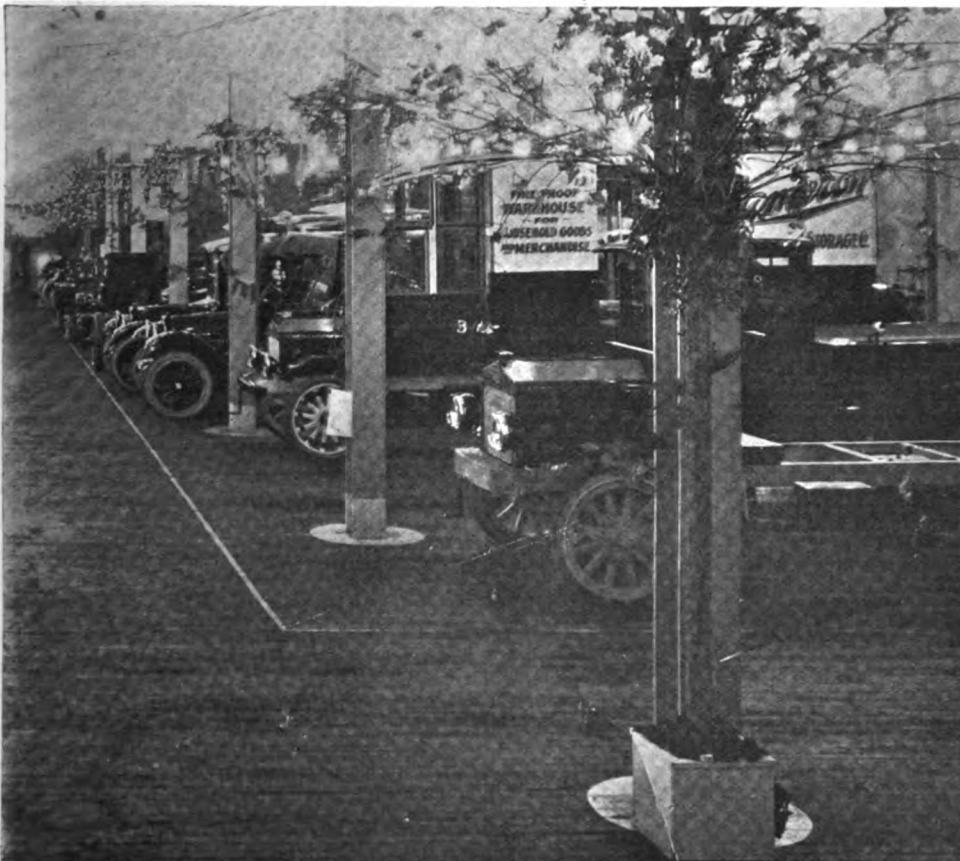
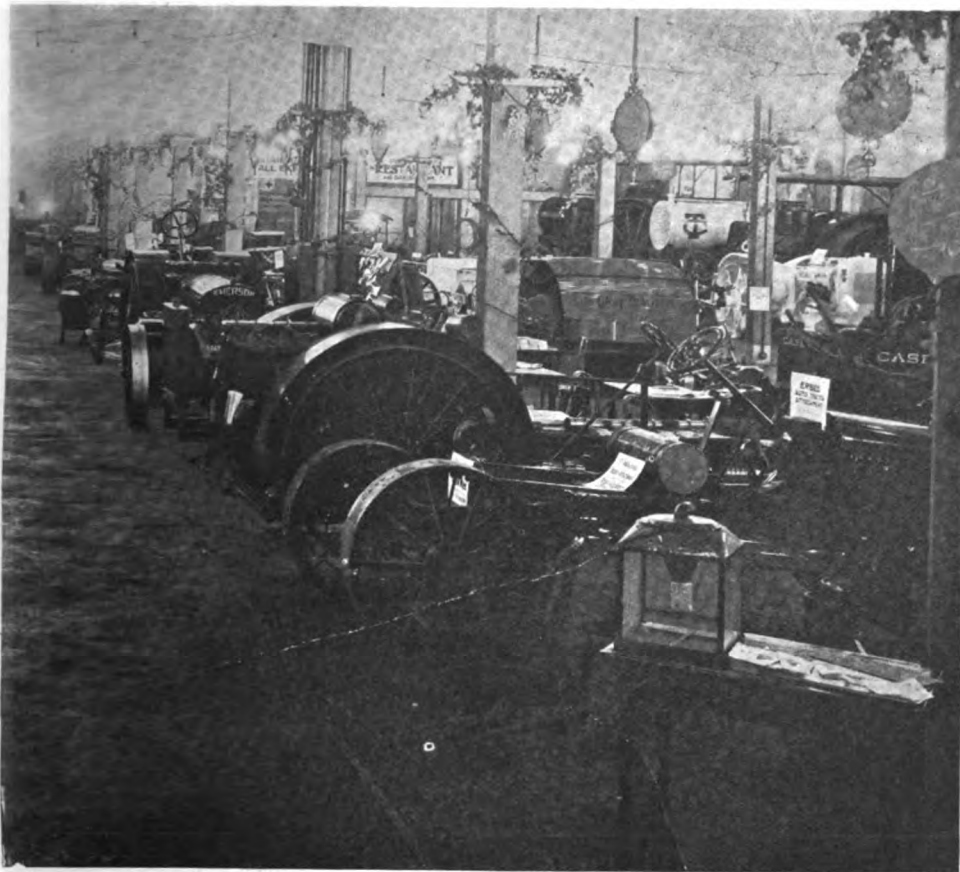
Always a "Twin Cities" Show

Furthermore, it will continue to be a Twin Cities show. And they are talking now of making a Twin Cities Automotive Trade Association, of building a big exposition building at the Midway, of merging this and merging that and, finally, of making a corporate Twin Cities that shall



Above is a general view of the tractor exhibit, staged in a mammoth entrance to the truck exhibit, covering a space 160 by 200 feet, is

First Real Automotive Show



have one government, one people and one ambition. To talk this used to cause smiles. It "couldn't be done." Maybe it couldn't, but it is partly done right now, and the automobile men did it.

The attendance figures are printed elsewhere in tabular form. It is interesting to add, however, that about 6000 dealers were there, which is as many as go to New York and Chicago combined. There are 200 bankers from the small towns of the northwest at the show.

As to the size of the show, the exhibits are printed on another page. There are 387, not counting the restaurants, cigar stands and other things in the basement. If everything were counted there probably would be 400.

Floor Space—268,000 Square Feet

The show is so big that it is difficult to know just how many feet of floor are used. Walter Wilmot, the manager, figured 268,000. Others have figured it all the way from 210,000 away up and beyond Wilmot's figure. Anyway, a few feet more or less doesn't matter much, because with only 210,000 the show is bigger than any other two shows in the country.

The building will store 7000 cars. There are 2000 in it while the show is on. If the 7000 cars were run along the street 15 feet apart they would stretch out for 43 miles.

One of the most interesting stories is how this mammoth show came into being, why it was held and how the dealers did it.

How the Show Was Conceived

As everyone knows, last year's show was in the Mazda building, in Minneapolis, across the river. Because the business men across the river were very kind in helping the dealers they were given one of the rooms at the show for a mercantile and industrial exhibit. It was very successful in its small way.

This year the dealers sensed the feeling of pessimism that has been in the air for several months and wondered whether they would be able to hold a show at all. They realized, as Motor World stated, that a show without a crowd is a business detriment. So they decided they **MUST** get a big show and a crowd to preserve the business spirit of the Northwest.

They determined to develop the industrial show of the year before and to bring in all branches of the motor car trade.

It was about Dec. 15 before they were able to secure a building. Without the Overland building the show would have been impossible.

Work on the plan did not begin until Dec. 24—but it then began in earnest.

Developing the Show

L. M. Browne was made industrial commissioner of the exposition. He went before the business associations of the Twin Cities and secured their endorsement. He opened an office in St. Paul and practically lived there.

All the motor car salesmen in the Twin Cities were made space salesmen

room measuring 185 by 200 feet. At the far end of the room the just visible. The exhibit itself is shown below the tractor exhibit



Here is a good exhibit which shows the manner in which the automotive trade is supporting war interests. At the request of a number of pretty girls, money was showered into the blanket

on the industrial idea. There were 20 teams of 2 men each in each city, and there were daily meetings each noon in each city at which the standing of the teams was shown on a blackboard. And each noon the salesmen told still farther on the idea. The farther they went the faster was their pace.

Business was classified—shoes, household furnishings, office supplies, etc.

Everybody Sold Space

The accessory jobbers and all the business men were lined up behind the idea. After quite a lot of industrial space had been sold the space buyers were organized into a big exhibitors' committee, with an executive committee, a letterhead with the names of all on it, and the first buyers went out and sold still more business men.

A big sales idea was developed. It was this: That with the war changing business it was necessary for the businesses of the Twin Cities to add new lines and new developments and make a drive for the trade of the Northwest. The result is that some of the industrial exhibitors are showing things they have taken on but recently. One foundry company is going into the machining of truck parts, etc.

The business men were shown that the purchasing power of the crowd at an automobile show is enormous and to be desired.

At one meeting there were 500 Twin Cities manufacturers. Meetings of different kinds were held incessantly.

E. P. Kelly of the La Crosse Auto Co., was similarly made chairman of the tractor work, and Harry E. Wilcox took charge of the truck division. Solicitation was made everywhere. The motor car situation took care of itself.

How Advertising Helped

Having sold the idea to the business men of the whole Northwest the advertising and promotion began. Tuesday was made conservation day. The fuel administrator was shown that the exhibition included food exhibits, Red Cross, army, navy and marine exhibits and that the instructive value of the show was great. He readily granted permission to remain open Tuesday, which is the day amusements are supposed to close.

The Red Cross was given the receipts of the first day, and this organization put teams at work downtown and sold thousands of tickets. The building was packed from the hour the doors opened Saturday. Monday the crowd was enormous and it has kept up all the week. All Government exhibits get free space.

A week before the show a big tractor parade was held, one day in St. Paul and another day in Minneapolis. It was a mile long. First there came the pre-

historic man with a wooden plow; then an Indian with his stick plow; then an ox team with an iron plow; then two horses with a modern plow; then a team with a sulkey plow; then the early models of tractors and finally the tractors of today, 45 in all.

The different divisions bore descriptive banners, and there were show banners in great number. There was one big band and five drum corps and about 20 policemen. The parade was a sensation.

The Railroads Were Sold, Too

The railroads were sold on the idea. Louis Hill of the Great Northern granted a 20-min. interview that lasted 2 hours and a half. He endorsed the project. The rules were let down and ads of the show were posted in the railway stations of the Northwest.

Paid ads were run in 56 papers of the Northwest and Canada. \$11,000 was spent in the Twin Cities in newspaper and billboard publicity. Ads in the territory were 50 in. each and began Dec. 18.

Letters were sent to 2500 dealers. Every business association in the territory was sent an invitation by the Twin Cities business associations.

One St. Paul jobber sent out 10,000 pieces of literature about the show. Everybody boosted. From a prospective fizzle the affair became an enormous success.

Dealers Have Come In by Hundreds

DEALERS have come in by hundreds. Farm work is slack, the show is an attraction and the territory has time to see the exposition.

Some of the dealers are holding meetings of their dealers. The Pence Automobile Co. is running a school every day at which technical experts from battery houses and other factories teach the fundamentals of their mechanics.

This suggests big possibilities. There should be a real Automotive Week during every show. It should not be all a joy-party.

More Meetings Needed

There should be meetings by all dealers, or possibly a school and series of talks in some big room at the show where the dealers from the territory could get education in mechanical business and sales affairs at the same time that they see the exposition.

This should be done at the Chicago show, where dealers come from all over the United States. And every dealer show should do it, too. Possibly by next year some such thing will be done. It is already receiving consideration by some of the trade's leading people.

Having demonstrated what a big job they could do in the show line when they buckled to it, it is to be anticipated that next year the Twin Cities will put on an Automotive Week that will be a hum-dinger.

Good Merchandising Display

FROM a merchandising standpoint the show is good. It is not a marvel or a seven-day wonder from this viewpoint, but it is GOOD. The exhibits look well. They are not crowded, and Wilmot is entitled to a lot of credit for the staging of the accessory and industrial exhibits.

Facts About the Show

In the Overland building, midway between St. Paul and Minneapolis, four miles from the downtown sections each way.

268,000 ft. of floor space used.

387 exhibits, not including three restaurants, a dance hall, moving picture show and numerous cigar, candy, soda and popcorn concessions.

The show building can store 7000 cars.

It is a quarter of a mile around the building.

St. Paul and Minneapolis effected co-operation on the show.

The whole job was put over in 6 weeks.

There are 400,000 square miles in the Twin Cities territory.

Put a compass on the Twin Cities and on Jacksonville, Fla., and give it a swing and it will nicely include that part of the country that buys the goods that are in the Twin Cities show.

They are fine. The decorating is done by E. W. Campbell of Boston, who, through the National Association of Automobile Show Managers, is doing Cleveland, Minneapolis and Kansas City this year in addition to Boston, which he has done for many years.

What the Twin Cities Must Do Next Year

NEXT year the Twin Cities will have to step some. It cannot afford to go back to the small shows of preceding years. The minute it lets down on its expositions the public will lose interest. The Twin Cities must begin now to plan on what it is going to do in 1919.

It has set an extremely high mark and must BEAT it.

Next year the exhibits should be classified on an automotive basis so far as possible. An effort should be made to get in all the tractor people, the gas engine people, the farm lighting people, the motorcycle people, the motorboat people, the tire people, all the accessory people, and as much of the industrial and business end as it can dig up. If the show is classified and gone at on this basis it should—with the reputation it has made this year—overflow any building that can be secured.

One thing has been demonstrated, and that it that a show can be held at an



This is the only room in the whole show that was turned over exclusively to exhibits of passenger cars. Imagine how many cars can be exhibited in a room of this size—185 by 200 feet



The mills of the Twin Cities are known all over the world, and so it is fitting that their products should be exhibited at this great industrial exposition

out-of-the-way point if there is a restaurant handy. The restaurant fed thousands every day. The dance floor was free and furnished recreation. The re-

sult was that people came to the show in the early afternoon, ate dinner there and stayed all the evening, and were amply repaid for the time they spent.

What Is in The Twin Cities Automotive Show

Motor Cars

Olympian Motor Sales Co.....Olympian
 Willys-Overland.....Overland
 Speed Motor Co.....Harroun
 R. C. Smith Auto Co.....Marmon and Velle
 Chevrolet Motor Co. of Minn.....Chevrolet
 Twin City Motor Car Co.....Hudson
 Liberty Motor Co.....Liberty
 Pence Automobile Co.....Pence
 Fawkes Auto Co.....Stutz and Reo
 Northwestern Auto Co.....Saxon and Jordan
 Brice Auto Co.....Grant
 Bohn E. Fawkes.....Oldsmobile
 Harvey E. Mack Co.....Dodge
 D. A. Odell Motor Car Co.....Pierce-Arrow
 Pelton Motors Co.....Franklin
 Reilly-Herz Co.....Elgin
 Ford Motor Co.....Ford
 LaCrosse Auto Co.....Dort and Malbohm
 Johnnie Johnson Motors Corp.....Standard
 Northwest Cole Motor Co.....Cole
 Anderson-Hays Motor Co.....Peerless
 Studebaker Corp.....Studebaker
 Joy Bros. Motor Car Co.....Packard
 Northwest Cadillac Co.....Cadillac
 Midland Motors Co.....Maxwell and Chalmers
 Joseph G. McClurg.....Baker-R. & L.
 John P. Snyder Co.....Premier
 Allen Motor Cars Co.....Allen
 George A. Morse, Inc.....Metz and Inter-State
 E. C. Thompson Auto Co.....Doble
 Misch Automobile Co.....Lexington
 Frederick E. Murphy Automobile Co.....Palge
 Jenny-Harrington, Inc.....Hupmobile
 Anderson Electric Car Co.....Detroit Electric
 Elcar Motor Car Co.....Elcar
 Locomobile Co.....Locomobile
 P. J. Downes Co.....Nash
 Winton Co.....Winton
 Stimson Automobile Co.....Monroe
 J. I. Case T. M. Co.....Case
 Chase Automobile Co.....Crow and Stephens
 Moore Motor Vehicle Co.....Moore
 Oakland Motor Co.....Oakland
 More Bros. Corp.....Briscoe and Pullman
 L. C. Erbes.....racing car
 Midland Motor Car Co.....Chandler

Accessories

Van Tilburg Oil Co.....Oils
 Northwestern Shock Preventer Co.....
 Flentje shock absorber

Inglis Mfg. Co.....Gasoline pumps and tanks
 Halewich Mfg. Co.....Cole gasoline gauge
 Refrigo Auto Chest Co.....Portable refrigerator
 Vul-Tex Mfg. Co.....Tire repair
 Climax-Western Oil Co.....
 Bulldog oils and greases
 Union Chain Co.....Tire chains
 Northwestern Spring Mfg. Co.....
 Springs and 2-bed trailer
 Bartles Oil Co.....Lubricants
 White Auto Supply Co.....General accessories
 Willis Tire & Rubber Co.....Tires and tubes
 Gill Piston Ring Co.....Gill rings
 G. Sommers & Co.....Tires and accessories
 Burd High Compression Ring Sales Co.....Burd rings
 K. & W. Rubber Co.....Repairs and Maxo tires

Minneapolis Torn Store Co.....Jobber
 Boone Tire & Rubber Co.....
 Tires, tubes and rubber heels
 Manhattan Oil & Linseed Co.....Oils
 P. R. L. Hardenbergh & Co.....Supplies
 Western Motor Supply Co.....Jobber
 Butler Bros.....Tires
 Storm Mfg. Co.....Reboring machines
 Hennepin Hardware Co.....
 Automobile hardware and tools
 Sterling Electric Co.....Accessories and supplies
 E-Z-2-C Dimmer Co.....Dimmer
 Baker Valve Co.....Piston rings
 Perma-Tite Mfg. Co.....Patches
 Marvel Machy. Co.....
 Reboring machines, spring shackles and
 piston rings.
 Wayne Oil Tank & Pump Co.....
 Pumps and tanks
 Seal-Tite Piston Ring Co.....Rings
 Metropolitan Motor Co.....Air compressors
 Dahl Rubber Tire Co.....Tires
 Bjornlie Mfg. Co.....Tire tools
 Northwestern Electric Equipment Co.....
 Rectifiers
 National Auto Signal Co.....Driving signal
 Rubber Products Co.....Stronghold tires
 Tong-Em-On Vulcanizer Co.....Vulcanizer
 Aaldrup & Best.....Rim grip, sub-casing
 Williams Hardware Co.....
 Automobile hardware and machinery
 United Mfg. Co.....Gas saver
 S. F. Bowser & Co.....Pumps and tanks
 T. L. Blood & Co.....
 Paint, polish and carbon remover
 Laursen Hydraulic Gearshift Co.....Gearshift
 Presto Cloth Mfg. Co.....Windshield wiper
 Lyle Corrugated Culvert Co.....Metal signs
 William R. Burkhard Co.....Savage tires
 A. C. Klemme Mfg. Co.....Car hoist
 Corcoran Pipe Wrench Mfg. Co.....Wrenches
 Essensell Electric Co.....
 Carburetors, horns, starters and magnetoes
 Scheffer & Rossum Co.....Vulcanizers
 Champion Spark Plug Co.....Spark plugs
 Manufacturers' Electric Service Station
 Philadelphia batteries
 Beecher-Cummings Co.....Wasco garage heaters
 Nicols, Dean & Gregg.....Jobber
 Falls Tire Co.....Tires
 Butler Mfg. Co.....Pumps and tanks
 Portage Rubber Co.....Tires
 George H. Kaligren.....Flag holders
 Chain-O-Spark Plug Co.....Plugs
 Pure Oil Co.....Oils
 Pioneer Rim & Tire Co.....Rims
 F. W. Van Sant Co.....
 Tires, supplies and road service
 Pyrene Mfg. Co.....Fire extinguishers
 National Auto Accessories Co.....Gas saver
 Turner Brass Works
 Welding, cutting and brazing apparatus,
 name plates and kick plates.
 Wold, Doran & Carr
 Borland air wheel and piston rings
 Eastern Rubber Co.....Tire repairs
 International Rubber Co.....Tires
 Perfection Tire & Rubber Sales Co.....
 Tires, heaters, wire wheels, plugs
 C. J. Smith & Co.....Accessories
 Otto Proksch.....Headlight turner
 R. H. Maxfield.....Maxo tires
 Kero-Karburetor, Inc.....Carburetor
 Long Wear Rubber Co.....Tires
 Reinhard Bros. Co.....Accessories
 Shotwell-Hobart-Johnson
 Radiators and repairs



And here is another view showing how the Twin Cities are getting behind the food conservation movement. This is an exhibit by the United States Department of Agriculture

Stremel Bros. Sliding garage door
National Lead Co. Dutchy Boy lead
Bieblhauser Specialty Co. Batteries
Northern Machy. Co.

Lathes, drill presses, etc.
G. J. Holgaard Co. Tents for motorists
W. S. Nott Co. Accessories and supplies
Gulterman Bros. Motoring clothing
St. Paul Tent & Awning Co.

Camping outfits
S. R. Perkins Co. Top dressing
Blick Co. Carbon remover and gas saver
Curtis Trailer Co. Bed trailer
Strong Scott Mfg. Co.

SKF ball bearing hangers, Morse chain
Northern Malleable Iron Co. Castings
Farwell, Ozmun, Kirk Co. Jobber
Wallis Coach & Carriage Wks. Coach work
Olen Auto Service Bureau. Traffic service
Utility Battery Co. Batteries
C. & O. Tire Co. Tires
Metal Products Mfg. Co.

Tanks, pumps, rim tools, water buckets
Brown Sheet Iron & Steel Co.

Pumps and tanks
L. Besanson Auto Painting Co. Painting
St. Paul Glass Co.

Dimmers, flags, ornaments and novelties
Metal Shelter Co. Garages
American Tent & Awning Co. Tents, etc.
Gardner Hardware Co. Hardware
St. Paul Machy. Mfg. Co.

Portable belt conveyer
St. Paul Foundry Co. Castings

Trucks and Accessories

Selden Truck Sales Co. Selden trucks
D. A. Odell Motor Car Co.

Pierce-Arrow trucks
Northwest Cadillac Co. Republic trucks
Pence Automobile Co. G.M.C. trucks

Prehm-McMullen Co. Acme trucks
Utility Truck Co. Utility attachment
Anderson-Hays Motor Co. Peerless trucks

Ford Motor Co. Ford trucks
Joy Bros. Motor Car Co. Packard trucks
Harvey E. Mack Co. Dodge commercial cars

Onelda Motor Truck Co. Onelda trucks
McNulty & Dafeo Co. Graham Bros. units
Cyrus Robinson & Co. Fulton trucks

Mumm & Johnson Auto & Carriage Co.
Diamond T trucks
International Harvester Co.

International trucks
P. J. Downes Co. Nash trucks
Midland Motors Co. Maxwell trucks

Metropolitan Motor Co. Bessemer trucks
A. J. Dean Co. Tiffin trucks
Lucke-Douglas Mfg. Co. Ford attachment

Fawkes Auto Co. Reo trucks
Bingham & Norton. Reo trucks
Federal Truck Co. Federal trucks

Studebaker Corp. Studebaker trucks
Menominee Motor Truck Co.

Menominee trucks
H. E. Wilcox Co. Wilcox trucks
Auto Truck Sales Co. Kelly unit and Maxfer

Northern Motor Truck Co. Denby trucks

Truck Accessories
Sewell Cushion Wheel Co. Cushion wheels
Moline Plow Co. Henney bodies for Fords

Schurmeir Wagon Co. Commercial bodies
Commercial Body Co. Parry bodies
J. L. Clark Mfg. Co. Bodies and cabs

Jukem Co. Bodies and cabs
Toro Motor Co.

Truck and tractor motors and hydraulic
transmission.
Eckland Bros. Co. Bodies

Tractors

Aultman-Taylor Machy. Co. Aultman-Taylor
Minneapolis Steel & Machy. Co. Twin City

Allis-Chalmers Mfg. Co. Allis-Chalmers
Convertible Tractor Corp. Me-Go attachment
Nilson Tractor Co. Nilson

More Bros. Corp. Parrett
J. I. Case T. M. Co. Case
Gray Tractor Co. Gray

Wallis Tractor Co. Wallis
Common Sense Gas Tractor Co.

Common Sense
Moline Plow Co. Moline Universal
Pence Automobile Co. Samson

Lang Tractor Co. Lang
Feeny Farmer's Tractor Co. Ford attachment
Emerson-Brantingham Implement Co. E-B

New Age Tractor Co. New Age
L. C. Erbes Tractor Co. Ford attachment
American Ford-A-Tractor Co.

Ford attachment
Russell & Co. Russell
Whitcomb Auto & Tractor Co. Challenge

Acme Harvesting Machine Co. Acme
C. O. D. Tractor Co. C. O. D.
Tri-State Machy. Co. All-Work kerosene

Belt-Rail Tractor Co. Belt-Rail
John Lauson Mfg. Co. Lauson
Stinson Tractor Co. Stinson

International Harvester Co. Mogul and Titan
Liberty Tractor Co. Liberty
Staudt Mfg. Co. Staudt Mak-A-Tractor

Federal Tractor Co. Tom Thumb
Avery Co. Avery
Huber Mfg. Co. Huber

Wedge Imp. Co. Auto-Pull
P. J. Downes Co.

Waterloo Boy and Beeman garden tractor

La Crosse Plow Co. Happy Farmer
Pioneer Tractor Mfg. Co. Pioneer
Northwestern Auto Co. Plowman
F. R. Corcoran Co.

Knickerbocker Form-A-Tractor
Eschner Motor Co. Guaranteed
Edward McClintock. Handy Hank attachment

Business Equipment

National Cash Register Co. Cash registers
St. Paul Typewriter Exchange

Used typewriters
Typewriter Clearing Association
Used typewriters

Lundstrand Adding Machine Co. Adder and calculator
Northwestern Stamp Wks.

Stamps and stencils
Cash Register Exchange. Cash registers
Barrett Sales Co. Adding machines

Thomas A. Edison, Inc. Dictating machines
Columbia Dictaphone Co. Dictaphones
Photoplating Co. Placques

Brown & Bigelow. Printing novelties
Republic State Bank of Minneapolis. Bank
Brown, Blodgett & Sperry Co. Printing

R. Steinman & Co. Advertising specialties
Blick Co. Typewriters
Telephone Distributing Co.

Telephonic appliance
H. & Val J. Rothschild. Insurance
Barry Telegraph Institute. School

Berger Mfg. Co. Sheet metal office wares
Randall Printing Co. Printing
Collins Advertising Service

Advertising service
Buckle Mears Co. Designs and engraving
W. H. Cary. Stamp affixer and envelope sealer

Minneapolis Office & School Co. School

Tractor Accessories and Farm
Implements

Minneapolis Steel & Machy Co. Oil engines
J. I. Case Plow Wks. Heavy duty plows
Joseph J. Kovar. Kovar quack destroyer

Donaldson Engineering Co.
Janesville Machy. Co. Plows and drills
Hyatt Roller Bearing Co. Tractor bearings

Scientific Farming Machy. Co.
Once-Over tiller
Strese-Sprague Co.

Deep tiller and seed grader
Gale Mfg. Co. Plows
Oliver Chilled Plow Wks. Plows

La Crosse Plow Co. Drill and harrow
P. & O. Plow Co. Separator and grader
Russell Grader Mfg. Co. Russell graders

American Engine & Tractor Co. Engines
K. B. C. Carburetor Co. K. B. C. carburetor
Foote Bros. Gear & Machy. Co. Gears

Common Sense Tractor & Auto School
School

Aviation
Aero Club. Airplane
F. Neubauer Flying Machine Co.

Airplane model

Marine
Auto Engine Works
Marine engines and shop work

Farm Power Equipment
Scheffert & Rossum Co. Lalley-Light
C. F. Schonek. Delco light

Northwestern Electric Equipment Co.
Matthews and Dyneto farm lighting sys-
tems. Sewing machines.

Black Swan Co. Swan-Lite for farms
Acorn Electric Mfg. Co. Farm lighting
Fairmount Gas Engine & Railway Motor Car Co.

Fairmount farm lighting and portable and
stationary engines.
Northern Electric Co.

Jones lighting system, sweeper, heater lamps
Roberts Hamilton Co.

Lighting plants, heating and plumbing
Maytag Co. Washing machines
Century Electric Co.

Clothes and dish washers and ironer
Huber Bros Mfg. Co.

Washing machines and carts
Sterling Electric Co. Washers
R. M. Laird Electric Co.

Washers and vacuum cleaners
Federal Sign System (Electric)
Washers, toasters, etc.

Fosston-Carpenter Co. Washing machines
Hirschy Co. Washing machine
A. J. Dean Co. Washers

Independent Silo Co. Milker
Perfection Mfg. Co. Milker
G. H. Tennant Co. Milker

Hinman Milking Machine Co. Milker
Hossfeld Mfg. Co. Manure loader
Howell Roller Mill Co. Roller mills

Pneumatic Sales & Engineering Co. Blower
U. S. Ensilage Harvesting Co.
Ensilage Harvester

H. E. Erickson & Co.
Power Lawn mower, concrete mixer
Rapid Churn Mfg. Co. Churn

Munson & Thompson, Inc. Shock loader

Franklin Barn Equipment Co.
Feed carriers, etc.

Northwestern Blau-gas Co. Blau gas
Danielson Bros. Grain disinfectant

Herschel Roth Mfg. Co.
Belting, machines knives, lawn mowers and
stock tank heaters.

U. S. Rubber Co. Mechanical rubber goods
Hog Motor Co. Hog motors

Household Goods

Minneapolis Furniture Co. Kitchen cabinets
Thexton Mfg. Co.

Comfort house radiator foot rail
Watson Marshall Piano Co.
Pianos and talking machines

Embrola Talking Machine Co.
Talking machine
Thomas A. Edison, Inc. Talking machines

Cable Piano Co. Pianos
Northwest Talking Machine Co.

Talking machines
Randenbush & Sons. Pianos
Gotzian Shoe Co. Shoes

Goodyear Rubber Co.
Boots and rubber footwear
Dyer Bros. Pianos and talking machines

Arrow Supply Co. Rustic furniture
John A. Dunn Co. Furniture
Yungbauer. Furniture

Minneapolis Bedding Co. Bedding
Northwestern Bedding & Mfg. Co.

Springs and bedding
Lanpher Skinner & Co. Furs
No Bone Corset Co. Corsets

Crex Carpet Co. Carpets
Re-Fillable Broom Co. Re-fillable brooms
Encyclopedia Britannica

Finch, Van Slyck & McConville. Clothing
Pohamus Co. Collapsible table

Foot Schulze & Co. Shoes
O'Donnell Shoe Co. Shoes
Gordon & Ferguson. Clothing

Thompson Shoe Co. Shoes
Nolan Rubber Heel Co. Rubber heels
Twin City Mission Furniture Co.

Libry-Dine table

Building Materials
International Insulation Co. House insulation
Specialty Mfg. Co.

Heating apparatus and regulators
Thorpe Bros. Real estate
Minneapolis Heat Regulator Co.

Furnace regulator
Red Win Sewer Pipe Co. Sewer pipe
Twin City Brick Co. Brick

Waldorf Paper Products Co.
Wall board and paper balers
Union Brass & Metal Mfg. Co. Plumbing

Weatherproof Calking Co. Building calk
Reese Mfg. Co. Screens
Carr Cullen & Co. Building materials

Drisco Silo Co. Silos
St. Paul Roofing Cornice & Ornament Co.
Garages and sheet metal products

Foods
Mil-Ko-Ko Co. Cocoa
Griggs Cooper & Co. Tea and preserved fruit

Northern Coconut Butter Co.
Holiday nut margarine
Fredman Milling & Mfg. Co.

Breakfast food and flour
American Barley Co. Breakfast food
Inglenook Candy Co. Candy

Douglas Co. Cooking oil
Munn Macaroni Co. Macaroni
Smith's. Candy

Sur-Pass-All Products Co.
Flaked barley and rye
Towle Maple Products Co. Maple syrup

Brown Co. Breakfast food
Foley Bros. & Quinlan. Canned goods
Creamette Co. Prepared food

Minneapolis flour mills, exhibit by 4 mills
Minneapolis Milk Co. Milk
Glaxo Milling Co. Flour and bread

Southern Cotton Oil Trading Co.
Wesson salad oil
Troco Nut Butter Co. Nut butter

Royal Lemon Products Co. Lemon compound
International Cereal Co.
Breakfast foods and flour

Federal and Civic Exhibits
Tri-State Telephone Co. Automatic telephone
United States Army. Recruiting Station

Minneapolis Retailers' Association. Rest room
Scandinavian Canadian Land Co. Land data
St. Paul Association

Community drying plant
U. S. Fuel Administration. Tamarack fuel
U. S. Food Administration. Food conservation

American Red Cross. Hospital exhibit
Minneapolis Civic & Commerce Association
Information

Minnesota Manufacturers Association
Labor-saving and safety devices
British Recruiting Mission

Recruiting station
U. S. Marine Corps. Recruiting station
Minnesota Women's Suffrage Association

American Red Cross Salvage Department
St. Paul Association of Commerce. Office
Anti-Tuberculosis Committee. Exhibit

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Why My Business Failed

*And How I Will Avoid Similar Blunders
in the Future*

By G. A. Smallidge

IN the experience of G. A. Smallidge, accessory dealer in Grand Rapids, there are many points of interest. In less than three years he has experienced a successful rise, a decline and near-approach to bankruptcy, a remodelling of ideas, an establishment of new principles and a second ascendancy to success.

In this time he learned the reasons why he, like many others, failed. And he was keen enough to recognize these reasons, strong enough to obliterate them, and courageous enough to come back along the right lines.

SMALLIDGE started out with a fair capital and opened the Union Sales Co. He was ambitious, he liked hard work, and he had a good business brain. He stocked up well on tires and many other accessories. He began advertising extensively. Newspapers were chiefly patronized. Dozens of other leaflets, programs, pamphlets and mediums were given a chance at his copy. Results were quick. Inside of a month he enjoyed strong business. Hundreds of motor owners were on his lists. At the end of three months the future looked even more rosy. To Smallidge it seemed as though he had attained success.

But all along Smallidge did not use good judgment. He knew that he did the wrong thing on many occasions, but he had made a start, and he was forced to keep it up.

Finally things drifted along until he took stock of what he had accomplished.

From the records he had kept he discovered that he was little better than even. He kept on going, but the more he worked the more complicated was his situation.

At the end of a year and a half of business he admitted that he was stumped. He called for help. For months it didn't come. Just as he was on the verge of giving everything up and going into bankruptcy he found a backer. He explained the situation, telling of his mistakes and his new ideas. The backer had confidence and took a chance.

To-day Smallidge is successful. And all because he had the courage to take advantage of his mistakes and model his business after right principles. Here is his story.



G. A. Smallidge

Leaves from Smallidge's business testament

*Improper credit.
Giving discounts.
Poor records.
Injudicious advertising.
No advertising.
Poor salesmanship.
Poor merchandising.
Insufficient financing.
Inattentiveness to detail.*

"First—I failed because I was too liberal with my credits. Good fellows came in and secured goods. They promised to pay shortly. Many of them did. But the majority did not. The result was that I was the loser. Uncollectable accounts will never pay bills. And you can't figure on a good fellow's promise when it is time for you to pay cash.

"Second—Just because you buy your groceries at the corner store is no reason why you should give the corner store-keeper a tire at cost. And you'll find that the butcher to whom you sell a spotlight for 15 per cent off list will charge you full price for your pork chops. This commercial reciprocity is no good for the bank account. It won't work.

"An accessory dealer will not ask for a discount on a loaf of bread. Why should the baker ask him for a discount on a

spark plug? This evil is the greatest that an accessory dealer has to combat. And the sooner he rates his business the same as every other—makes a regular 'store' out of it and gets the full list—the quicker he will proceed to the satisfied column.

Good Bookkeeping Essential

"Third—There is an absolute need for good records. Guess-work bookkeeping will never do. Jotting a note here on a letterhead and a note there on a scrap of loose paper will not produce exact accounts at the end of the month. Every dealer should know his costs and his profits—his overhead and all. And he must figure in his lights, his stenographer, his hauling, his deliveries—in fact, he must figure every item. And he can't reach in the register and pick

out coins for private use. He must keep his home and his business separate. Then, when the end of the month comes, he knows where he is at.

"I wandered along, with an apparently exceptional business, for months without realizing that I wasn't making money. All because I didn't know how much my costs were and because I didn't keep good records.

"Fourth—I advertised injudiciously. Instead of holding to the newspapers, adhering to a few mediums with the best circulation and recognized values, I patronized everything. If someone came along with a program I took space in it. The circulation was never what the solicitor said it was. And the advertising was

of no real value in the first place. I took on many novelties—and I squandered much money in that way that could have been applied to much greater profit along other lines. I believe in advertising, all the advertising that is reasonable. Nothing can be accomplished without it. But it must be done judiciously or it will be a useless expense.

Must Be Salesman Not Order Taker

"Fifth—Many dealers are nothing more than order takers. If a customer comes in they sell him what he asks for. They do not put forth the merits of their goods. They simply take what falls into their hands. The result is that their profits are 50 per cent under what they should be. Anyone can take an order. But a good salesman can do more—he can excite interest and dispose of two articles while the order taker is disposing of one. The talking point of every article should be known by the dealer and his salesman. Each one has some special appealing feature. If these are put up in the right way sales are bound to follow. But the man who is satisfied to sell only that which is requested will never go very strong in the business world.

"Sixth—The big feature of every business is good merchandising. When a department store opens, goods are displayed to attract attention. Many a woman has gone shopping for a pair of gloves and come home with a new coat. She would have come home with just the

gloves if the coat hadn't been displayed in an attractive fashion to catch her eye. It's the same in the accessory business.

"A man drops into my store for a tire. He gets that tire. But while he is there his attention is attracted to at least a dozen other accessories on display. These accessories are neatly carded. They are shown to an advantage. An inquiry means an explanation of merits and an explanation usually means a sale. Good merchandising is the entering wedge. It cannot be overlooked. And the dealer who follows out this idea, arranging his stock to the best advantage—changing it around frequently—and, above all, keeping it clean—there is the dealer who knows what the comfortable side of the ledger is.

Financial Backing Essential

"Seventh—No man can go into business insufficiently financed. It means grief from the start. The knowledge that you can pay your bills is the keynote of success. It eliminates worry and worry takes attention from business that would otherwise bring in money. There are instances on record of men making successes on a shoe-string. So you may learn of men who have invested small sums in stocks and become immensely rich. But you never hear of the thousands who invested the small sums and failed. Every business should be well it will grow.

"Last—No accessory man can be a

success unless he pays attention to details. No man in my employ can use profanity. If he does he loses his job. I never use it myself. I believe in neatness in appearance. There are no cigar or cigarette stubs around my store. My desk is kept free from litter. I don't allow loungers. I never put my feet on my desk. I pay attention to details. It must be done.

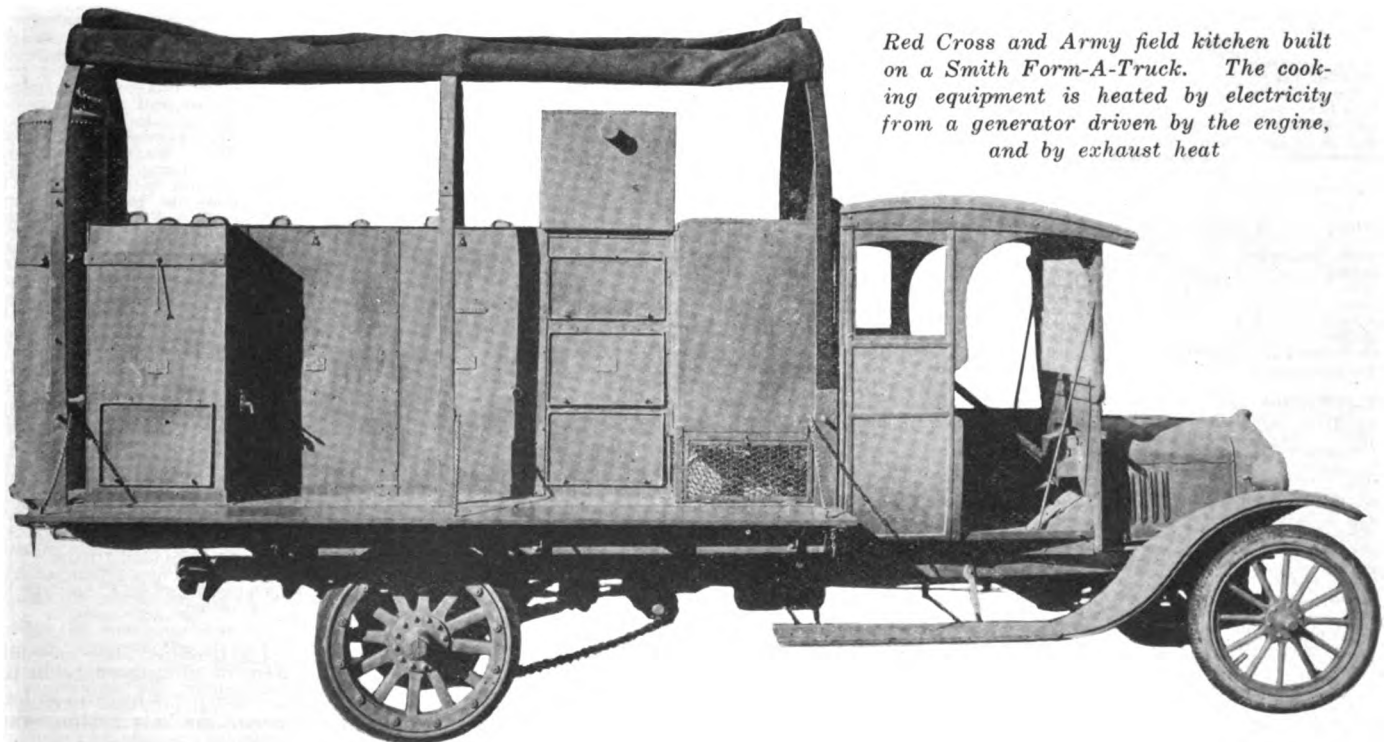
Employ Earnest Men

"Only last week I talked to an exclusive tire dealer—a big dealer too. He employed a clerk who cocked his feet on a desk every time he had an opportunity and scanned a paper. One day a business man dropped in and asked for the proprietor. The clerk was in his 'inattentive' attitude. He displayed no interest, merely mentioning that the proprietor was out of town.

"That business man operated five trucks. He had never used any other make of tires before. His account was good. But he cancelled it. He uses another brand of tires now and the dealer is the loser. The clerk lost his job, but it didn't bring the business back. That's why I'm particularly interested in attention to details.

"And any dealer who is slipping, if he will scan my reasons for near-failure and take advantage of them, will find that the way will be smoother and the profits larger in the time to come."

To Feed the Boys Who Fight



Red Cross and Army field kitchen built on a Smith Form-A-Truck. The cooking equipment is heated by electricity from a generator driven by the engine, and by exhaust heat

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

Lien Laws of All States

DURING the past year there have been a number of changes in garagemen's lien laws in the various states. California passed a law making it a misdemeanor to remove a car which is subject to a lien. Illinois, Indiana, Kansas, Montana, New Mexico, Oregon and Wisconsin enacted new lien laws for the protection of the garagemen which will be found in the following compilation.

By George F. Kaiser

ALABAMA

Mechanics who contribute labor and materials toward the repair and improvement of vehicles have liens for their charges, which liens must be enforced by attachment within 6 months after the last item of material is furnished or the last item of labor is performed. Section 4785, Code of Alabama, 1907.

ALASKA

Persons who bestow labor on an article of personal property at the request of the owner have a lien upon the property on which the labor was bestowed and may retain possession of such property until their charges are paid and sell it at public auction if their charges are not paid within 30 days, provided however, that 30 days' notice is given before the sale. The claim must be filed within 60 days after the completion of the work. Laws 1915, Chapter 5.

ARIZONA

Mechanics and artisans have liens for the amount of their charges for work done on personal property, but this lien expires in 6 months, unless suit is instituted. Section 3673, Chapter 5, Revised Statutes.

ARKANSAS

This State has no specific garageman's lien law, but has a provision that mechanics, blacksmiths, wheelwrights and material men have liens for labor and materials furnished in repairing vehicles. The Supreme Court held, in the case of *Sheldon vs. Little Rock Auto Co.*, 146 S. W., page 129, March 25, 1912, that a garagemen is a wheelwright under this provision of law and has a lien for labor performed by him and materials furnished in repairing a motor car. He must file an itemized statement of his account with the justice of the township where the debtor resides or where the property on which the lien is claimed is located, which description must be verified by affidavit. Kirby's Digest, Sections 5013, 5016.

CALIFORNIA

Every person who, while lawfully in possession of an article of personal property, renders any service to the owner thereof by labor or skill employed for the protection, improvement and safe-keeping or carriage thereof, has a special lien thereon, dependent on possession for the compensation, if any, which is due to him from the owner for such services; the person who makes, alters or repairs any article of personal property at the request of the owner or legal possessor of the property has a lien on it for his reasonable charges for the balance due for such work done and materials furnished and may retain possession of the property until the charges are paid . . . and garagemen shall have a lien, dependent on possession, for their compensation in caring for and safe-keeping motor cars. Section 3051, page

1010, Supplement to Notes and General Laws of California, entitled "Liens on Personal Property for Services Thereon."

COLORADO

Mechanics have liens upon articles of personal property when these are made, altered or repaired at the request of the owner.

CONNECTICUT

Garagemen and repairmen seem to have no liens in this State for storage, repairs, etc.

DISTRICT OF COLUMBIA

Any mechanic or artisan who makes, alters or repairs any article of personal property has a lien thereon for work done or materials furnished and may retain such article until his charges are paid. If they are not paid within 6 months, he may sell such property at public auction.

FLORIDA

Any person has a lien on personal property when he performs any labor upon or with any engine, machine, apparatus, fixture or implement, or upon such engine, machine, apparatus, fixture or implement, and for manufacturing, repairing and altering articles or things of value. Suit must be brought on claims of this kind within 12 months from completion of the work or the furnishing of the last item of material.

GEORGIA

This State has no specific statutory garageman's lien law, but mechanics have liens on personal property upon which they have worked. In the case of *Broughman Automobile Co. vs. Emanuel*, 73 S. E. 511, Jan. 10, 1912, a garagemen's right to a "mechanic's lien" for labor performed and materials furnished in repairing a motor car was recognized.

IDAHO

Persons making, altering or repairing an article of personal property at the request of the owner have a lien for reasonable charges and may retain possession of the property. If the charges are not paid within 2 months, the garageman may sell the property at public auction on 10 days' notice after advertising in a newspaper in the county where the work was done or posting a notice in three of the most public places, if no newspaper is published there.

ILLINOIS

Garagemen shall have a lien for proper charges due for repair materials and expenses incurred at the request of car or truck owners when motor vehicles, parts or accessories are sold on a conditional bill of sale, and the seller remains unpaid, if the conditional sale contract has been filed in the recorder's office in the county where the sale took place before the lien attaches.

INDIANA

Every person, firm or corporation or others engaged in storing or furnishing supplies for or repairing automobiles, motor trucks or motorcycles shall have a lien for storage charges for furnishing supplies and for repairing.

Within 60 days after the charges become due, notice of intention to hold a lien must be filed in the recorder's office of the county where the work was done. This notice must contain the amount of the claim and give a description of the vehicle. Liens may be foreclosed in the Circuit Court of the county where the work is done by filing a complaint within 1 year of the owner's refusal to pay the charges due. Attorney's fees are allowed the dealer when action is brought to enforce the lien. Chap. 167, Acts of 1915.

IOWA

Persons having personal property in their possession to which they have imparted additional value by their labor have a lien for their charges thereon where there is no special contract for such lien.

KANSAS

A first and prior lien is hereby created in favor of any blacksmith, horseshoer, wagonmaker, garageman or any other person upon any goods, chattels, or other vehicles or automobiles and any farm implements of whatsoever kind, which shall have come into the possession of such blacksmith, horseshoer, wagonmaker, garageman or any other person for the purpose of having work on said property, or repairs, or improvements in anywise appertaining thereto. The lien shall amount to the full amount and reasonable value of the services performed, and shall extend to and include the reasonable value of all material used in the performance of such services.

KENTUCKY

There seems to be only a common law lien in this State.

LOUISIANA

All owners, operators, or other persons operating a garage, or other place where automobiles, or other machinery are repaired, shall have a lien or privilege on the automobile or other machinery repaired, for the repairs and labor performed on the same; provided, that the privilege herein granted shall not exist for a longer period of time than 90 days after said repairs are made, and, provided further, that this privilege shall have no effect against bona fide purchasers of said machinery, without previous notice.

MAINE

Persons have a lien for labor expended in the improvement of personal property. At a recent session of the legislature an act was passed which provided that whoever puts a motor car in a public garage

or other place where cars are stored for hire, and without having an express agreement for storage, procures accessories or accommodation for himself or said car, and with intent to defraud the owner or keeper of said garage removes or causes to be removed any such car from such garage without paying the reasonable charges due for repairs, supplies, accessories or accommodation furnished thereon, shall be punishable by imprisonment not exceeding 3 months or by a fine not exceeding \$100. In order for the owner or keeper of such a garage to obtain the benefits of this act, a printed copy must be posted up in some conspicuous place in the garage. Chapter 214, Laws of 1913, Maine.

MARYLAND

Persons altering or repairing personal property at the request of the owner are entitled to a lien on such personal property when it is kept in their possession.

MASSACHUSETTS

Persons maintaining public garages for the storage and care of motor cars and other motor vehicles which are brought to their premises or placed in their care by or with the consent of the owners thereof, shall have a lien upon such motor cars for proper charges due them for storage and care. Chapter 300, Acts of 1913 of Massachusetts, being entitled "An Act Relative to Liens by Persons Maintaining Public Garages."

MICHIGAN

All garagemen who furnish labor, gasoline or supplies by express or implied contract have a lien on all motor cars, etc., stored, maintained and supplied or repaired or furnished with gasoline, electric current and accessories when these things have been furnished at the request or with the consent of the owner. The vehicle may be detained at any time within 90 days after the last item of work was done or the last item of material was furnished. Dealers may advertise if they are not paid within 90 days after serving a claim of a lien and an itemized statement of the account and can then sell the property like at a chattel mortgage sale. Dealers must comply with all the laws of State, cities, towns, etc., to avail themselves of this lien law. Michigan, 1915, Law.

MINNESOTA

Persons altering, repairing or bestowing labor on any article of personal property at the request of the owner or legal possessor have a lien for their just and reasonable charges. If they are not paid within 90 days, they may sell the property at auction on giving notice. They also have a lien for storage.

MISSISSIPPI

Garagemen have a lien for labor performed and materials furnished in repairing motor cars under Code of 1906, Section 3075, and may retain the property in their possession and sell it. This right is superior to that of a person who sells a car on a conditional bill of sale and retains the title. Decided in *J. A. Broom & Sons vs. S. S. Dale & Sons*, 67 Southern 659, March 15, 1915.

MISSOURI

There is a common law lien on chattels which have been improved by the labor of a mechanic if they are retained in his possession.

MONTANA

Every person while lawfully in possession of an article of personal property rendering service to the owner by labor or skill employed in the making, repairing, protection, improvement, safekeeping or carriage thereof has a special lien dependent on possession for compensation due. Mont. Code 5005.

NEBRASKA

Any person who makes, alters or repairs, or in any way enhances the value of any vehicle . . . at the request of or with the consent of the owner, shall have a lien on such vehicle . . . while in his possession for a reasonable or agreed charge for the work done or materials furnished; and shall have the right to retain said property until said charges are paid. If possession of the property is parted with, the lien may be retained if a certificate is filed in the office of the clerk of the county where the work was done or the material was furnished, or the property was kept, together with a verified statement of the items of work, etc., and a description of the article repaired . . . within 60 days after the last item was performed. Chapter 39, Revised Statutes of Nebraska, 1913, paragraphs 38-41, Section 19, entitled "Artisans' Liens."

NEVADA

All garagemen, repairshops or places for buying and selling automobiles have a lien

upon motor vehicles for the sums due for storing, maintaining, keeping or repairing them or for labor furnished thereon or for furnishing accessories or supplies therefor, and may detain the car or truck until the charges are paid. This lien is not lost by allowing a motor vehicle to be removed, as the person having the lien may seize the car or truck wherever it may be found without the State of Nevada. This lien is secondary to conditional bills of sale, leases and mortgages. Action to enforce the lien must be brought within 20 days. Where a motor vehicle is sold, the lien terminates unless the buyer is notified within 40 days from the date of sale. Incurring a bill upon a motor vehicle without the authority of the owner or by misrepresentation is a misdemeanor, punishable by a fine of not more than \$100 or 30 days in the county jail, or both. Chap. 213, Laws of 1917.

NEW HAMPSHIRE

There is a common law lien when a person has lawful possession of personal property for any expenditure made by him or labor performed at the request of the owner.

NEW JERSEY

Garagemen, repairmen, etc., may detain vehicles in their possession against which they have charges for storage, repairs, gasoline, accessories, etc., until they are paid. The lien is not lost if motor cars are removed from their possession, and they may be seized wherever they may be found in any part of New Jersey.

Detained cars may be sold at public auction after 30 days if the sale is first advertised in a paper in the city or town where the garage or repairshop is located, and 5 days' notice is set up in five of the most public places. Chapter 312, Laws of 1915, New Jersey, entitled "An Act for the Better Protection of Garage Keepers and Automobile Repairmen."

NEW MEXICO

Persons who store, maintain, keep or repair motor vehicles or furnish gasoline, oil, lubricants, accessories or other supplies have a lien for their charges and may detain the motor vehicle until the sum due is paid. This lien is not lost by allowing the property to be removed. To sell the property suit must be instituted and judgment recovered, after which it may be sold on execution. Notice of the claim showing the amount of indebtedness and for what it is due should be served on the owner and if the charges are not paid within 10 days the property may be sold. The sale must be advertised and the property sold at public auction after 20 days' notice. The proceeds of the sale after the lien charges and expenses have been paid are to be refunded to the owner. Chap. 65, Laws of 1917.

NEW YORK

Garagemen have a lien on motor cars for storage, repairs, gasoline and other supplies furnished with the consent of the owner whether a conditional vendee or a mortgagor in possession, and may detain the property if in their possession until their charges are paid. Section 184, Lien Law, Consolidated Laws of New York.

NORTH CAROLINA

Mechanics, etc., have a lien on articles of personal property which they repair or alter. This lien must be filed within 12 months after the completion of the work. Six months additional are allowed to institute an action to enforce the lien.

NORTH DAKOTA

Mechanics have liens for the amount of their charges for labor performed upon articles of personal property.

OKLAHOMA

Blacksmiths, wheelwrights, horseshoers, etc., have liens for work done or articles repaired.

OREGON

Every automobile repairer who has expended labor, skill and material on any chattel at the request of the owner has a lien for the contract price notwithstanding possession has been surrendered to the owner. 164, P. 714.

PENNSYLVANIA

Mechanics have a common law right to a lien for labor performed by them. There is an act in this State entitled "For the Protection of Keepers of Garages or Automobile Shops," providing that every person who shall place in any garage or repairshop any automobile for storage, repairing or garage service, and shall surreptitiously remove the automobile or cause it to be removed by any false pretense or device with intent to defraud, shall be adjudged guilty of a misdemeanor and, upon

conviction, shall be sentenced to a fine of not more than \$100 or imprisonment in the county jail for a term not exceeding 3 months, either or both, at the discretion of the court. L. 1913, No. 277.

RHODE ISLAND

Mechanics are entitled to liens upon articles for labor performed and expenses bestowed at the request of another.

SOUTH CAROLINA

Mechanics have liens upon articles of personal property when they have bestowed labor upon the same.

SOUTH DAKOTA

Mechanics have liens upon articles of personal property for labor performed on the same.

TENNESSEE

Garagemen, etc., have a common law lien on property repaired by them if they retain possession of it. Under Acts of 1909, Chapter 150, providing that there shall be a lien upon any vehicle . . . for any repairs or improvements made or fixtures or machinery furnished at the request of the owner or his agent, in favor of a mechanic, contractor, founder or machinist who undertakes the work. A mechanic has a lien for repairs for labor performed and materials furnished in repairing an automobile. *Shaw vs. Webb*, 174 S. W. 273, Supreme Court of Tennessee, March 6, 1915.

TEXAS

Although there is no special provision for a garageman's lien in this State, mechanics, artisans, etc., have a lien for any articles created in whole or in part by their services and for labor performed upon the same. Under Article 5665 R. S., 1911, there is a special provision for liens for work on vehicles. It has been held that though a garageman may avail himself of the lien given under these statutes, he loses the lien by giving up possession of the property. *Malcomn vs. Simms*, 164 S. W., 924; *Caldwell vs. Supply Company*, 158 S. W. 1031; *Ford vs. Freeman*, 168 S. W. 80.

UTAH

Any person bestowing labor on personal property at the request of the owner has a lien for his labor and for materials furnished in connection therewith. In the case of *Westminster vs. McCurtain*, 118 R. C. 564, Sept. 27, 1911, it was held that a garageman was included and had a lien for his services in repairing an automobile.

VERMONT

Every person who makes, alters or repairs an article of personal property at the request of the owner has a lien thereon for his reasonable charges and may retain possession of the same until such charges are paid, and further may, if such charges remain unpaid for 3 months, and the value of the property does not exceed \$100, sell the same at public auction by posting notice in two or more places in the town of his residence for 10 days.

VIRGINIA

Mechanics have a lien for labor bestowed in improving personal property.

WASHINGTON

Persons expending labor, skill or materials on articles of personal property at the request of the owner have a lien upon such chattels for the contract price of their labor and materials or for the reasonable price of their services for a period of one year, providing that they file notice of their claim within 90 days from the date of delivering up the chattel and institute an action to foreclose their liens within 90 days after filing notice of lien. 1 R. & B. C., Sections 1154, 1157.

WEST VIRGINIA

Mechanics and artisans have liens for repairing personal property.

WISCONSIN

Every garageman or repairshop proprietor who alters, repairs or does any work on any detached accessory, fitting or part of an automobile, motorcycle or other similar motor vehicle at the request of the owner, shall have a lien upon and may retain possession of any such accessory, fitting or part until the charges have been paid. If such debt remains unpaid for 6 months or more any garageman or repairshop proprietor may sell such detached accessory, fitting or part at private auction or public sale, and the proceeds, after first paying the expenses of sale, shall be applied in payment of the debt, the balance, if any, to be paid over to the county clerk of the county where the sale is held in trust for the debtor.

WYOMING

Mechanics have liens upon articles which they have improved by their labor.

Winter Business

NOW!
One Last
Winter
Push

Second Wind for the Home Stretch

NO! Winter isn't over yet. One thaw doesn't make a Spring. It makes bad going for cars and trucks. The car that seemed all right last Fall is apt to develop trouble in the mud and slush. Anyway, there is no need to take chances. You have another month to preach preparedness to your customers.

Don't be discouraged because they didn't listen to you before. Go at them again. There is less time now. Therefore the more reason to get to work and keep at work.

Change your method of persuasion.

The letters you used in the early Winter have lost their punch by now. Get out some new ones. Fine weather is coming soon.

Don't let people lose a lot of it just when they want their cars most. Talk to them. Call on those you have written to and write to those you have called upon.

Don't be afraid of saying the same thing over again. Hammer it in! Keep at it!

And another thing. The accessory business is always with us. You know all the new kinks. Tell your customers. You'll be surprised how many new devices they need.

And now is the time to get them.

Show them the good things. See that they buy the ones that really serve their purpose. Many things are good but not all are good in every case.

Use your expert knowledge and advise your customers wisely. You will get both their money and their confidence. Then watch your business grow.

No, Winter is still with us, but it won't be long. Write those letters. While the girl is typing them put on your goloshes and make those calls. Hurry up!

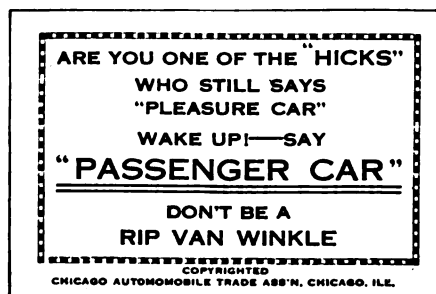
Chicago Never Sleeps

Wake up! Here's a card that was distributed at a dinner given on the opening day of the show by the Chicago Automobile Trade Association. It was called a Backbone Dinner. And it was all of that. This is just one of their ideas.

Old Rip thought too much of pleasure. And now look at him!

Passenger cars are more necessary than ever. The wideawake dealer knows this.

Cars are needed at home. Cars are needed over there. Passengers must be carried on war duty, on



Government service, on business of every kind.

Time is valuable. A minute saved may save a life. Cars save time. And they don't last long at the front.

Passenger cars, not pleasure cars. Pleasure can wait until the war is won. There will be mighty little if it isn't.

Do your share to boost NECESSARY business. Cut out the frills. Think of the essentials. Push the PASSENGER CAR.

Here's How the West Broadway Garage Follows Them Up

Our Letter Comes Back

The West Broadway Garage, Onawa, Iowa, appreciates the Motor World's Winter Business helps. This letter was first published in these pages for the good it might do our readers. Here is a reader who appropriated it bodily—as we hoped someone would. It looks even better this way than it did in type.

tion. Then, all of a sudden, they all grew big at once—and the end came.

After every season, especially one such as we have just had, your car should be looked over and at least tuned up.

It is our suggestion that you bring it in our shop, let our mechanics inspect it and advise you as to its condition.

Incidentally, we can give you better service NOW than later, because we are right between the summer and spring rushes. We

Why don't you take a hint from the railroads and have your car given the proper attention.

NOW is the time to do it.

Bring us your car NOW for a thorough inspection and let us tell you just what needs to be done to put it in shape for another season's driving.

We have the facilities and the men to put your car in number one condition in the shortest possible time.

It will be inconvenience and money saved for you in the spring.

Don't put it off, bring your car in NOW or have us call for it.

Yours respectfully,

WEST BROADWAY GARAGE.
K. A. Pullen.


Every Gallon Helps

Editor Motor World: The enclosed folder is gotten out by a repairman in Morristown and treats on a subject that to our minds is quite opportune and what is most important of all, it treats in a thoroughly practical way. Automobiles are always more popular when the running expenses are at a minimum. Therefore, it is up to the automobile owners of the present day to see to it that nothing is wasted that would tend to increase the operating expenses.—Houpert Machine Company, New York.

Don't Waste Gasoline—Help Win the War

1. Have spark timed correctly with engine and drive with spark fully advanced—a late spark increases gasoline consumption.
 2. Don't spill or expose gasoline to air—it evaporates rapidly and is dangerous.
 3. Don't use gasoline for cleaning and washing; use kerosene or other materials to cut grease.
 4. Stop all gasoline leakages.
 5. Have brake bands adjusted so they do not drag.
 6. Don't let engine run when car is standing. It is good for starter to be used frequently.
 7. Have your carburetor adjusted at our service station to use as lean a mixture as possible. A rich mixture fouls the engine and is wasteful.
 8. Pre-heat air entering carburetor and keep radiator covered in cold weather—this will insure better vaporization.
 9. Have a hot spark, keep plugs clean and spark points properly adjusted.
 10. Avoid fast driving. The average car is most economical at 15 to 25 miles an hour.
 11. Don't accelerate and stop quickly. It wastes gas and wears out tires. Stop engine and coast long hills.
 12. Cut down unnecessary use of cars.
- Your observance of the above suggestions for avoiding gasoline waste will not only provide the war department with the gasoline required to win the war but will also benefit you personally through more efficient and more economical operation of your motor car.—Victor A. Wise & Brother, Morristown, N. J.

Willys-Knight Model 60 Overland



WEST BROADWAY GARAGE

K. A. PULLEN, Prop.
Onawa, Iowa

Dear Sir:—

Your car has had a busy summer.
So have we.

But now neither your car nor our shop is as busy as a few weeks ago.

The summer's service has been rather hard on your car, and there are some things that need to be done to it before it is run another season.

What is the condition of the electrical system? Does the magneto or distributor, as the case may be, start your car with the snap it used to have? How do the generator and starting motor work? They are subject to their troubles too, and must have proper care. Worn insulation on a wire will cause your storage battery to run down. In fact the whole car is subject to ills of various kinds and requires constant attention.

Right now we can give you plenty of time and attention and assure you that your car will be ready later when you want it and will be a benefit to us in that it will keep us busy now when work is slack and relieve us of the rush when spring comes.

Please consult with us as soon as you conveniently can, because it is our desire to give you the best advice and prices at our disposal.

Come see us today or call Number 188 and we will do the rest.

Yours respectfully,
WEST BROADWAY GARAGE.

K. A. Pullen

OUR TELEPHONE NUMBER IS 188

BUT one letter is not enough. Keeping **B**everlastingly at it brings success. Here, then, are two more, sent out after a reasonable interval. They carry the same message and they hammer it in.

Dear Sir: Running a car season after season without having it touched by a skillful mechanic is often considered a point of great merit in the car. But generally cars that aren't looked after once a year go to pieces all of a sudden some day and the owner can't understand why.

The reason is that the car was full of little bits of trouble all the time. They kept accumulating, but didn't affect the car's opera-

have plenty of time and room to handle your work.

Bring your car in to-day.

Yours respectfully,

WEST BROADWAY GARAGE.
K. A. Pullen.

Dear Sir: Do you expect your car to do all the work it has done for you the past season and stand up under the strain without attention being given to its mechanical make up?

When a locomotive has finished its run it is immediately sent to the round house for inspection and necessary repairs. Railroad companies realize the importance of keeping their machinery always in first class condition.

What the Motor Car Has Done for St. Louis



This is the famous motor row cut-off in St. Louis. The city tore down the brick block that stood on this plot and made a street a block long that connects a boulevard with motor row. What once was an unsightly evil building is now one of the most beautiful boulevard spots in the city. This cut-off is shown in the small circle on the map on the opposite page

ST. LOUIS, Feb. 8—What the motor car trade has done for St. Louis is mildly shown in the accompanying photographs. Imagine, if you will, a street of gray-stone, three-story houses, such as people regarded as the climax of home architecture in the after-Civil-War period.

By the time the motor car made its appearance in trade quantities, this row of houses on Locust Street, from Twentieth Street to Cardinal Avenue, had degenerated into a boarding house district, and had reached almost the low level of that class.

A few of these houses, the better ones, still stand as relics of the times past. A few of them are residences, but mostly they are publishing houses or agencies. But two-thirds of the frontage of this row is taken up with motor car establishments or accessory manufacturing plants or salesrooms.

The present prevailing type of architecture is as near that of the bungalow as a business house can be built. There is a goodly proportion of imposing, four-sided, dignified business blocks, such as the Overland and Missouri Packard buildings, or utility-looking buildings like

the McQuay-Norris plant. Several blocks of plain one-story salesrooms have been built, the property owners frankly admitting that these are temporary until a definite type of motor car building has come into being.

As a result of this upbuilding of Motor Row it was necessary to make a radical change at the point where Locust Street turned at right angles north and south. Motor cars could not make this turn, so the city condemned a block of brick buildings and made a new street, a "cut-off" to connect Locust with the wide, handsome Lindell Boulevard for a driveway to the high-class West End residence section.

On what was left of this block was erected the Plaza Hotel, an ornate, concrete structure that is the home of many of the motor car folk with motor salesrooms on the main floor. One of these is to be the dining room some day. Now it is the salesroom of the Mitchell. On the other triangle formed by the cut-off through the block is the handsome home of the Brandle Motors Co., selling the Chevrolet and Westcott. The Hudson-Philipps Co. faces this cut-off. The City

Park Department keeps green the boulevard space in the center of the cut-off.

This cut-off opened the way for an extension of Motor Row on to Lindell Boulevard, where it runs westward to Grand Avenue, the chief cross town thoroughfare. At this west end of the Row the Vesper Buick company has built a handsome new home. Across from the Vesper Buick building are three tire agencies with a brilliant display of gaily painted service cars, electrically lighted signs and driveways for cars seeking service.

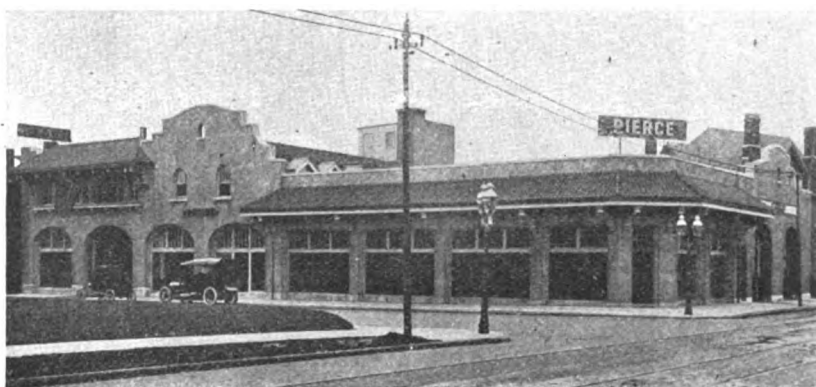
This, of course, is merely the retail side. In the manufacturing line there is the story of the two great buggy and carriage plants that have been made the home of even greater industries—that of the Banner Buggy, known everywhere in the west as the home of the best popular-priced buggy, now the home of the Chevrolet body works and the Moon Carriage plant now devoted to Moon cars.

There is the Dorris plant, a model of its kind, that recently absorbed the Mogul truck plant; the great Ford assembly plant, and more than a dozen other factories.

The St. Louis Row Is Filled With Beauty Spots



Packard is represented in its usual palatial style



Pierce has one of the modern bungalow type of buildings that make the St. Louis row one of the prettiest in the country



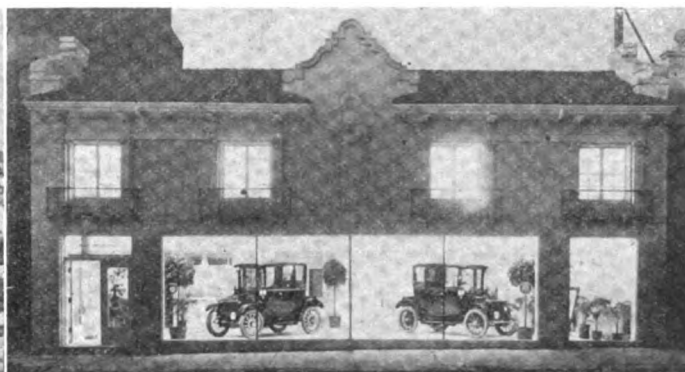
Overland, of course, needs a big building but it is a mighty good looking structure



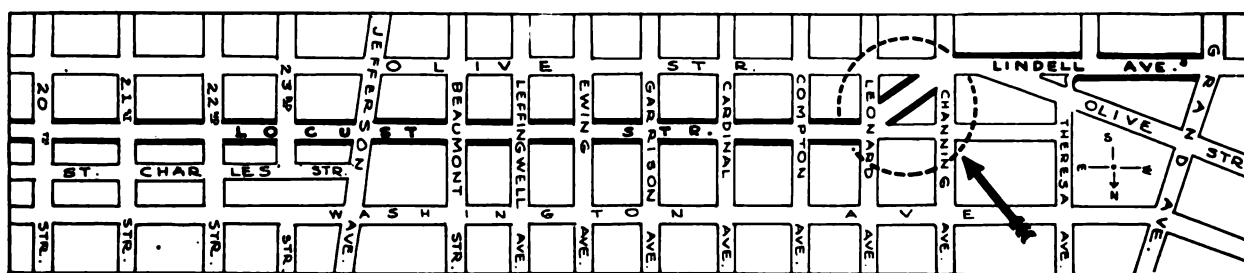
Buick is a slightly different type of architecture, but one that is very attractive. Note especially the roof line at the top of the building



This is a gasoline filling station and is a type of construction that would be an ornament to any section

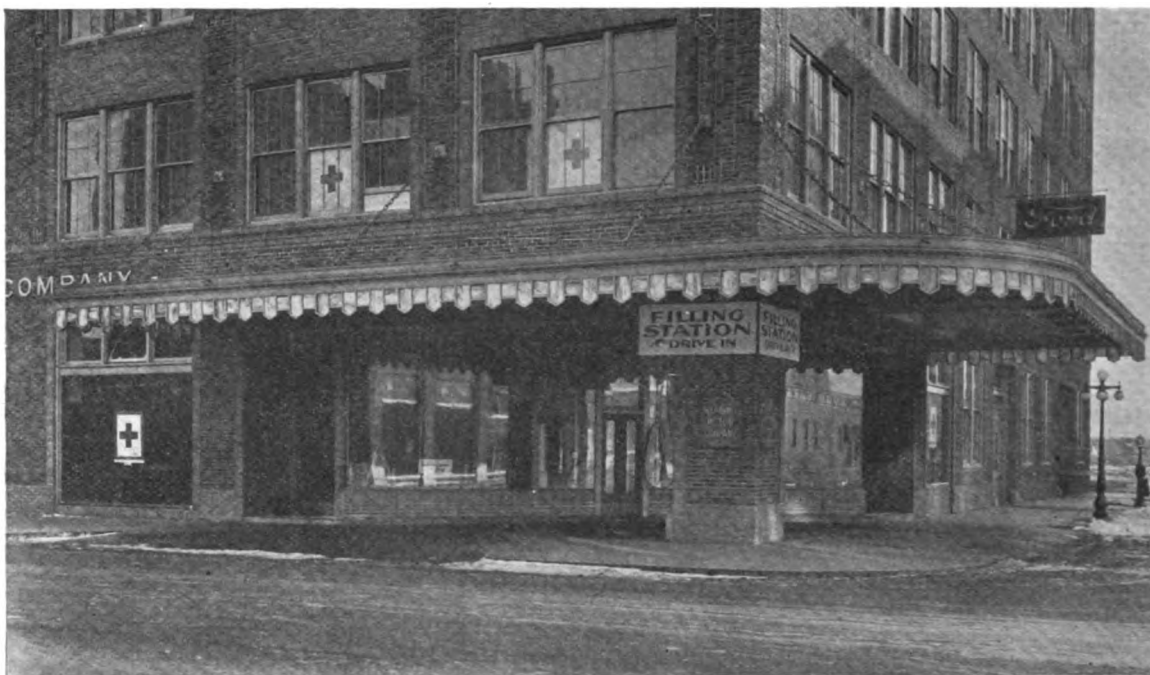


Still a different type of construction is used by the Baker electric dealer



The streets marked with heavy black lines are the motor row. The small diagonal street within the dotted circle is the "cut-off" which the city made by tearing down a brick plot and putting new streets through. All this was done for the benefit of motor row, and the row has well repaid the city by its contribution to real estate values

How Herring Routes Repair Jobs



Middle West's Biggest Jobber Has Reduced Progressive Practice in Service Stations to a Science

THREE words—Service, Efficiency, Specialization—represent the governing ideas in the new service building just completed by the Herring Motor Co., Des Moines, Iowa, one of the largest jobbers of automobile accessories in the United States. In construction, equipment and arrangement this building is probably the last word in service practice. It will be formally opened during the week of the Des Moines show, Feb. 18-23, when the Herring company will hold an accessory show of its own.

Clyde S. Herring has spent several years inspecting service buildings throughout the country, and, in the planning of this latest one, has sought to embody the best points gathered from others' experience, together with his own ideas.

The building is brick, 132 x 148, five stories, and with no basement. Officials of the Herring company do not believe in basements. It is conveniently located within three blocks of the center of the business district and connected by a subway with the company's six-story office building across the street.

The construction is of steel beams and wood joists with three 50-ft. spans, necessitating only two rows of pillars on an entire floor.

Profiting from experience, the Herring company has learned that the great secret in keeping a large number of cars moving is to have a wide thoroughfare permitting the movement of the cars in one direction. Therefore, there are two large doors on the west side, one of which is used exclusively as an entrance and one as an exit.

-
- 1—Five Stories of Perfect Service.
 - 2—Scientific Handling Eliminates Lost Motion.
 - 3—A Model Accessory Display Room.
 - 4—Light, Air and Cleanliness.
 - 5—Specialization the Watchword.
-

The thoroughfare layout is identical on all floors, three thoroughfares on a floor, each 28 ft. wide. The two main thoroughfares are in direct line with the two large freight elevators, and cars entering the building can go directly to the elevators and be taken to the desired floor without crowding. At both the entrance and exits are doorkeepers, and no car is permitted to leave without either an O. K. from the foreman or a pass.

The front third of the main floor is given over to a salesroom, 50 x 132 ft. A greater portion of the display room is occupied by the car display, office rooms for the executive heads, and a rest room. The remainder of the room is the home of the retail accessory department, which is equipped with specially constructed showcases and cabinets, electrically lighted.

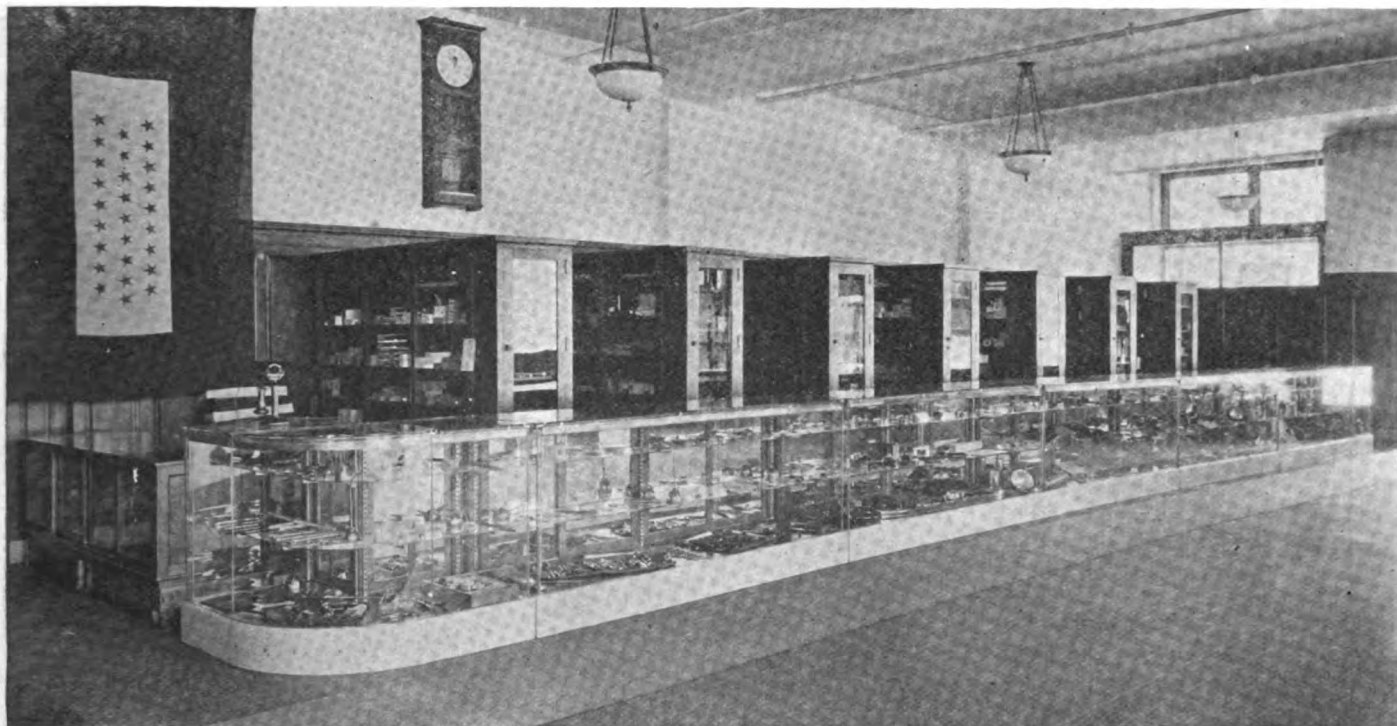
One corner of the salesroom has been cut off by an 18-ft. driveway, 44 ft. from sidewalk to sidewalk. In the center of this drive is a model filling station, equipped with two rapid-return-stroke gasoline pumps and specially constructed containers for oils and greases. Not only the interior of the filling station, but all of its equipment is finished in white. It presents a striking appearance, particularly at night.

A great deal of thought and attention were given to the designing of this oil station and the two display windows which flank the sidewalk on either side of it. Hundreds of cars drive into the filling station every day and the occupants are brought face to face with the accessories which are on display in the windows. They also get a clear view of the display room.

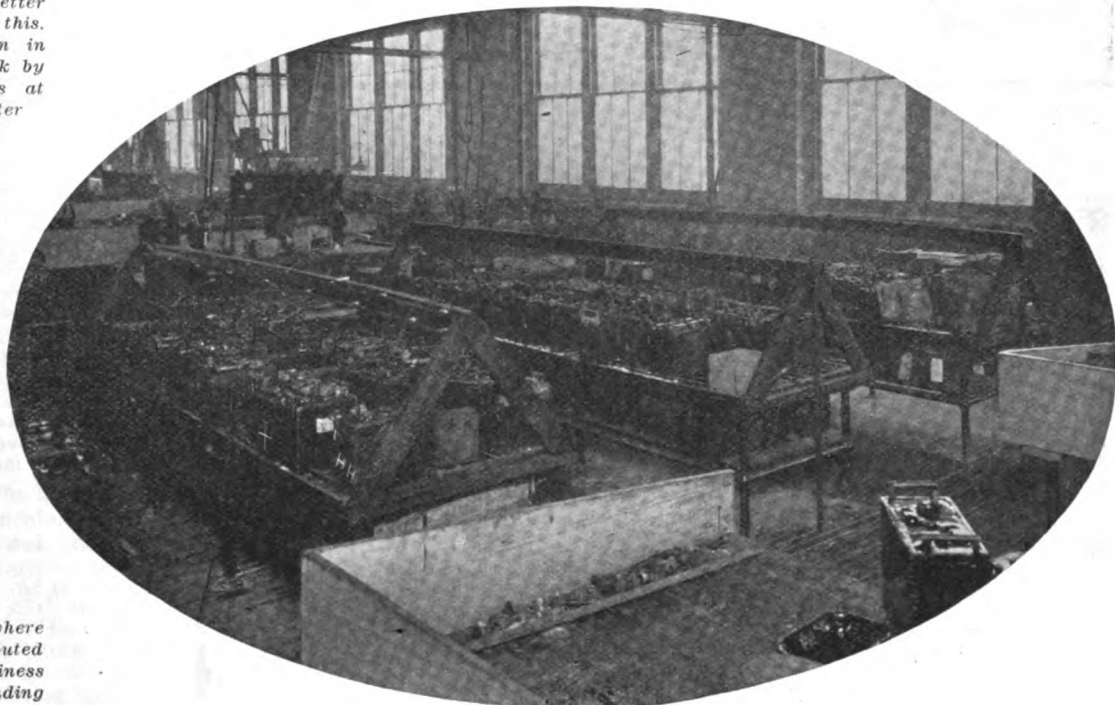
This arrangement not only enhances the beauty of the first floor, but serves as a most effective puller for accessory sales.

The rear two-thirds of the ground floor is given over to garage work. It is used as a receiving station, and practically no storage cars are permitted on this floor. The entire floor is marked off in spaces just large enough to contain a car, and each space is numbered.

When a car comes in for repairs it is first met by one of three expert workmen, and a careful diagnosis of the trouble is made. The work is then written out clearly on a shop order. This is signed by the customer, who is then given a numbered card which serves as a receipt for his car. The card bears the owner's name and license number. The

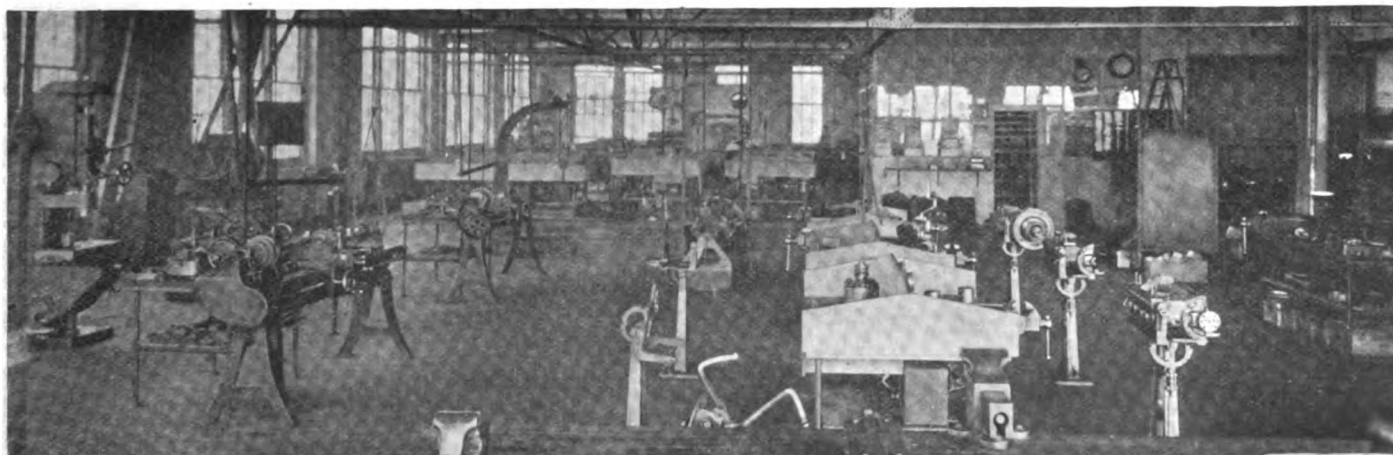


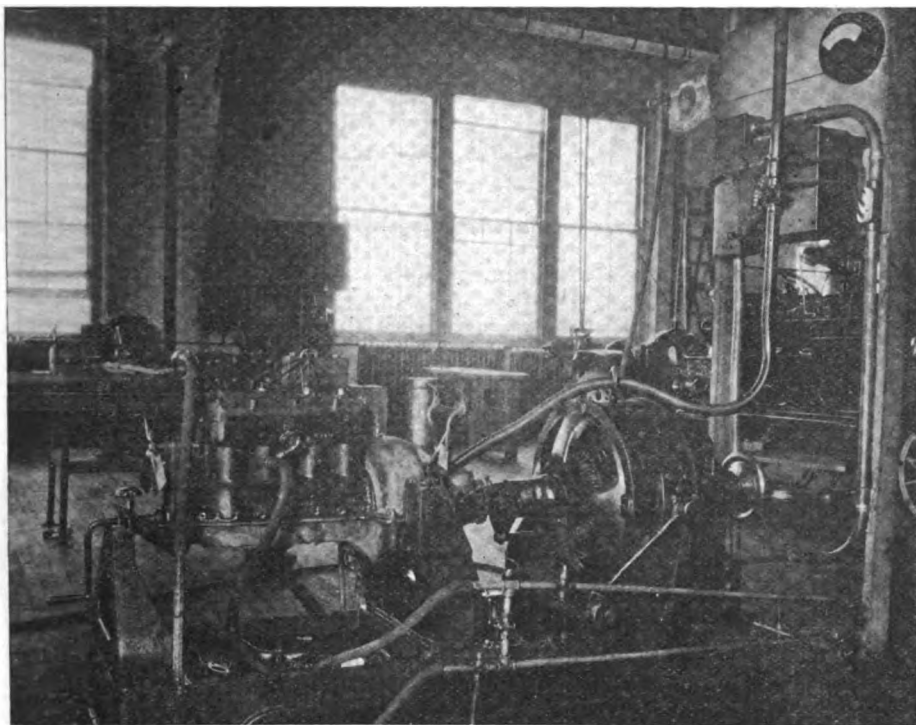
It would be hard to find a better accessory store lay-out than this. Note particularly the gain in space for quick-selling stock by placing the stock cabinets at right angles to the counter



Careful planning has resulted in this arrangement for battery charging where 175 batteries can be put on charge at once

And here is the shop where every job is properly routed through and where cleanliness and order are the outstanding features





After an engine has been overhauled it is given a thorough dynamometer test and when it leaves the shop, the foreman knows it is RIGHT

O. K. stamp is placed on the receipt originally given him when he turned in the car and this serves as a pass at the exit door.

The second floor is devoted very largely to the entertainment and comfort of employees. It serves also as a ballroom for the parties given by the Herring Motor Club, of which practically all of the 250 employees of the plant are members. It is also an ideal place to hold meetings of the sales force or other employees.

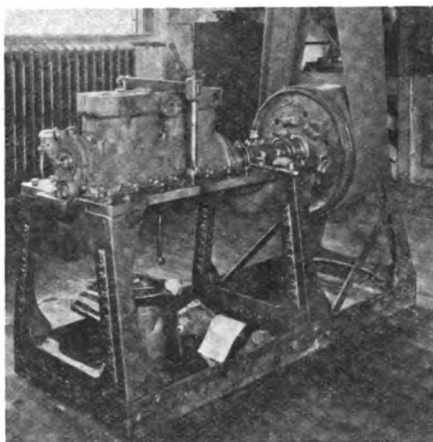
Storage cars occupy the entire capacity of the third floor.

On the fourth floor are the assembling and minor repair departments. About one-third of this floor is rented to a local truck company as a warehouse.

It is when one reaches the fifth floor that he really begins to appreciate what an unusual plant the Herring company has built. Here are the shops and here is the keystone of the building. More thought and attention went into this floor than into any other part of the plant.

The floor has been arranged with a fixed idea of progressive movements of cars and parts. There is no back tracking with either parts or materials. Machinery and tools are located so that they are in direct line with the most efficient movement of the repairs. Specialization is the watchword of the floor. If special machinery would save operations and time, it was installed.

Overhaul work is done in the south half of the shop. All riveting is done with air hammers, and bolts and rivets are removed with air tools. The shop has 15-ft. ceilings, and is supplied with four big skylights. The roof is equipped with ventilators.



Instead of being laboriously scraped in, bearings are burned in, the cylinder block being clamped in this stand and the crankshaft driven by a belt around the flywheel

One corner of the shop is given over to the battery department, and here 175 lighting and starting batteries can be charged at one time. The plant has its own water still.

A wonderfully complete stock occupies practically the center position in the big shop floor. It is outfitted with special Ford tools and also special tools for carbureters, magnetos, starters and batteries. Ford parts, carbureters, parts for Rayfield, Schebler, Stromberg, Holly, Kingston, of all types and models, are carried here. The tools are checked out to the men by a checker and can not be taken from the stockroom without record being made.

The south wall of the shop floor is equipped with tile outlets for connecting exhaust pipes of running cars, so that

practically all gases are removed from the room. The lavatories are large and are kept spotlessly clean.

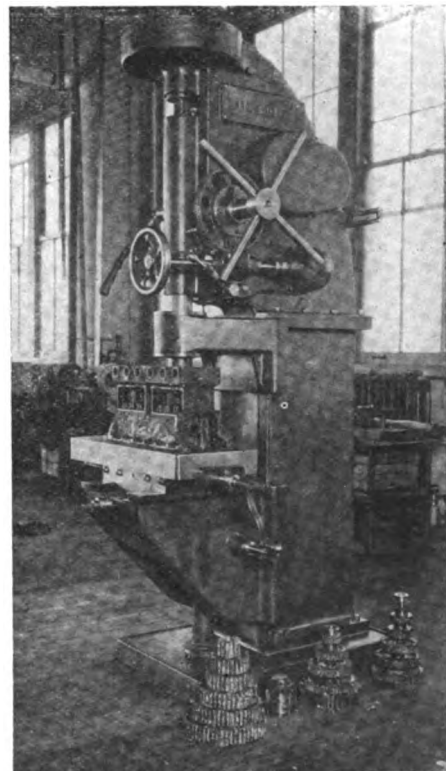
Seventy-five trained mechanics are employed on the shop floor. Of this number, twenty-five work in the high-speed department in the south half of the floor. Each man in this department has his own work bench and tools. As an example of the efficiency which has been developed here, a job of grinding valves and cleaning carbons is turned out in an average time of 1 hour and 15 minutes.

The shop work on Ford cars is handled on the operation system. That is, after the diagnosis of the trouble has been made the car owner can be told at once just what the labor expense will be.

The accessory show which the company will hold this month will occupy the entire second floor of the new building and already thirty of the biggest accessory manufacturers have arranged to have special exhibits here with factory representatives. Without question it will be the largest accessory show ever held in the central west. Invitations will go from the Herring company to 8000 dealers in Iowa and the surrounding states, and will afford dealers an opportunity to view the new plant.

New Bell 1½-Ton Truck

YORK, PA., Feb. 10—The Bell Motor Car Co., Inc., will manufacture a 1½-ton truck with internal gear drive and wheelbase of 112-124-136 in. in the factory it recently purchased from the Pullman Motor Car Co., York. It will also bring out a new model Bell passenger car.

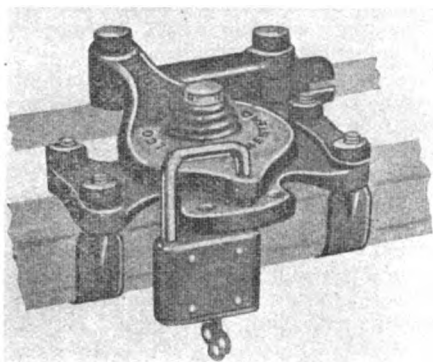


Where cylinders are scored or worn, they are reborescoped with modern equipment in the minimum of time

Accessories

HELCO CONTROL AND LOCK

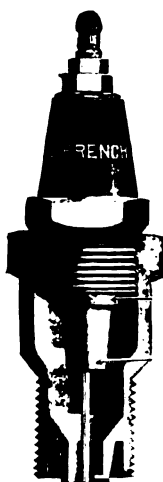
A steering control and locking unit designed to keep the front wheels of a car in alignment without offering increased resistance to steering. There is no spring tension to overcome.



The inclined seat on the movable member rests tends always to hold it in the center. The steering gear can be locked in any one of three positions. It is easily and quickly attached.—Homestead Engineering Laboratories Co., Homestead, Pa.

LA FRENCH SPARK PLUG

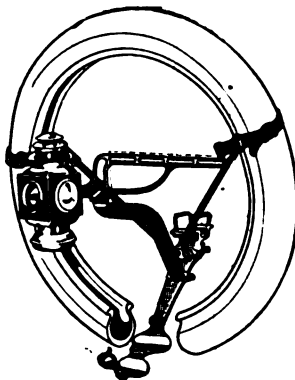
This spark plug, just placed upon the market, is built with telescopic tapered fittings assembled by hydraulic pressure.



It consists of two independent parts which can be readily taken apart for cleaning. At the bottom is a protecting thimble to prevent the accumulation of carbon within the plug.—La French Power Spark Plug Co., Columbus, O.

GEMCO COMBINATION TIRE HOLDER

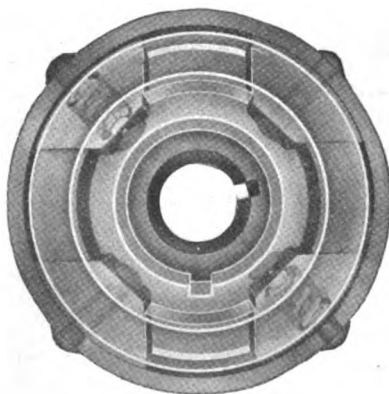
This is adjusted to the joint formed by the intersection of the rear frame and car spring. No holes are drilled nor are any mechanical changes necessary. The



holder accommodates one or two tires, a lamp and license bracket. Price, \$5.50 and \$6.—Gemco Mfg. Co., Milwaukee.

RAYFIELD COUPLING

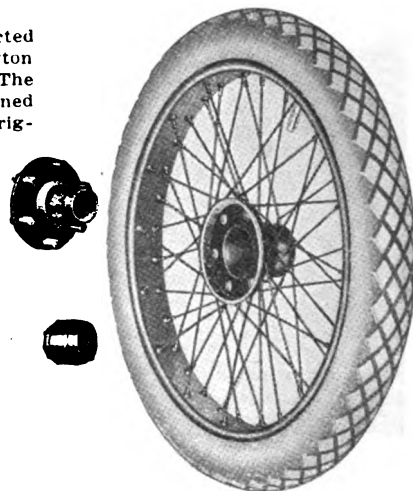
A magneto, generator, or pump-shaft coupling consisting of a ring 2 in. in diameter with 3/32 in. wall, to which are riveted two triangular steel blocks, midway between which are two movable blocks impelled inwardly by coiled springs. The drive is taken on the solid blocks, but



the spring tension is such that a pressure of 34 lb. exerted by the shaft end members upon the loose blocks will squeeze the latter outwardly. Designed to replace the plain thrust washers at the gear side of the Ford and Chevrolet 490 differential.—The George D. Bailey Co., Chicago.

DAYTON CHEVROLET WIRE WHEELS

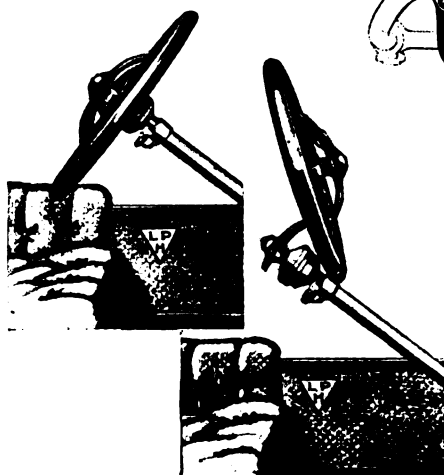
These wheels are constructed after the model of the Dayton wire wheels for Ford cars. The triple spoke lacing is designed to give great strength and rig-



idity. They are sold in sets of five, the extra wheel being carried with tire inflated. Hub caps and mountings are furnished; the change from wooden wheels is therefore quickly and easily made.—Dayton Wire Wheel Co., Dayton, O.

HALLADAY TILTING STEERING WHEEL FOR FORDS

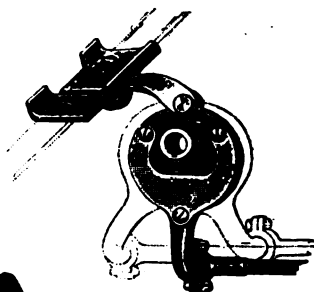
A tilting steering wheel the locking feature of which is controlled by a trigger on the under side of the wheel arm. It is attached by simply removing the nut on the end of the steering



column and replacing the old wheel with the new. It is supplied in two sizes for 15-in. and 17-in. rims at \$4 and \$5 respectively. The 15-in. spider alone, fitting any standard Ford rim, is priced at \$3.—L. P. Halladay Co., Streator, Ill.

OSPECO-IRREVERSIBLE STEERING UNIT

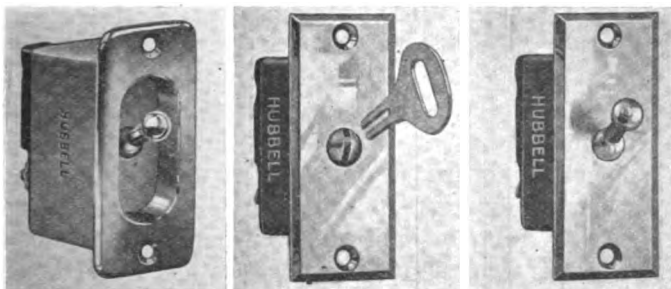
A device for all models of Ford cars which holds the front wheels securely in any position



until they are moved by the steering wheel. So constructed that it is impossible to turn past center and lose control of the car. It is said to operate as easily as a well designed worm gear. Price, \$5.—Michigan Auto Products Co., Detroit.

HUBBELL TOGGLE SWITCHES

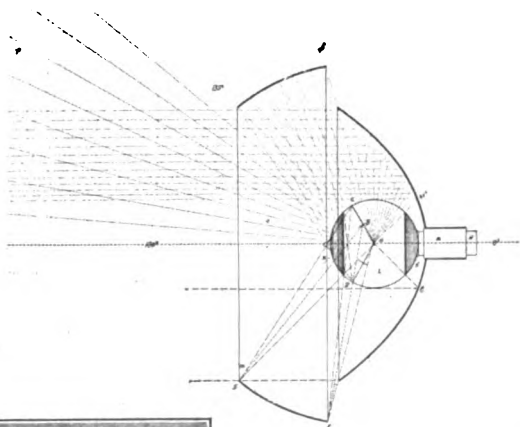
These switches are designed for use on light or horn circuits. The light switch has a capacity of 50 watts. The horn switch returns to open circuit position automatically when released. The key switch provides a means of grounding the circuit to prevent unauthorized use of the car. It may also be used to control the ignition or lighting circuit. The switches are



furnished singly or in series or multiple gangs. They are finished in nickel or black. List prices from 80c to \$1.60, according to type.—Harvey Hubbell, Inc., Bridgeport, Conn.

CELLBEAM SPOT LAMP

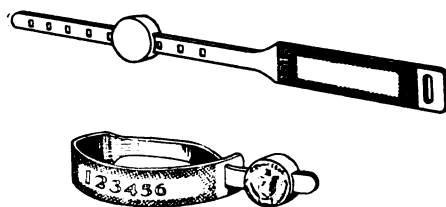
A portable spot lamp carried in the side door pocket. A concentrated beam is projected 500 ft. and near-by objects are illuminated by a diffusive glare



of indirect light free from direct filament glare. A spherical reflector embraces the light for 105 degrees. Beyond this is a second reversed reflector of annular form which throws the rays backward upon the frosted, translucent front of the light bulb. The frosted portion, receiving light from back front and back, becomes highly luminous and provides a surface of powerful but diffused light. The lamp is hand patterned to steel dies, finished in polished nickel, with silvered reflectors. The switch is in the handle and there is also an external focusing adjustment. A 6-volt nitrogen bulb is used, but other voltage to fit any electric current source is supplied if desired. Price \$8.—Cellbeam Mfg. Co., Brooklyn.

SACHS-LAWLER LICENSE SEAL

An aluminum band on which is stamped the number of the license tag. It is fastened to the steering wheel spider and sealed with the seal of the state issuing the license. It cannot be removed without destroying the seal and therefore serves to prevent fraudulent changing of the car license number. Price, 4 cents each.—Sachs-Lawler Co., Inc., Denver, Colo.



KLEMME AUTO HOIST AND CRANE

A combination hoist and crane for factory or garage use. It is mounted on rollers and the hoisting mechanism is operated by a worm gear automatically holding the load at any point



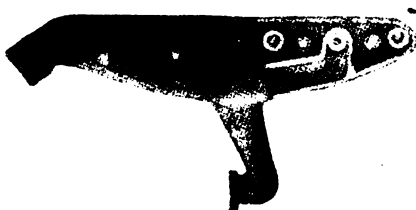
up to 43 in., and giving access to the under side of a car with safe and clear working conditions. The crane attachment is adjusted in a few seconds for handling motors, transmissions, bodies and heavy parts.—A. C. Klemme Mfg. Co., Davenport, Iowa.

"IMPROVED" SPRING OILER

A saddle-shaped steel frame fitting over the spring and held in place by a bolt passing through the lower lugs. It contains a piece of felt which absorbs the oil and allows it to penetrate between the leaves. The oil hole has a cap to protect it from dust and mud. Made to fit any car. Price, 30 cents each.—Improved Gauge Mfg. Co., Syracuse, N. Y.

PECK'S SUPER HEAT MANIFOLD

A one-piece gray iron casting that replaces the intake and exhaust pipes and is so constructed that the intake is on the inside of the exhaust, bringing the incoming gas in direct contact with the hot intake walls heated by the exhaust, which vaporizes the fuel before entering the cylinders. Ford type \$7.50. West of Rockies, \$8.50.—Peck's Super Heat Co., Elkhart, Ind.



Editorial Observation

Opportunities

NOT all of us are given the power and the ability to think up opportunities. But we can all use our eyes and our ears, and there are few better ways to see opportunities than by looking intelligently at what others are doing.

The American department store, that monument to American business enterprise, is an excellent example to pattern after. Here, as nowhere else, has the great cornerstone of success been visualized.

When the war clouds commenced to gather, London merchants felt a shiver of apprehension. What with Zeppelins and war planes in the skies, these men could see, or thought they could see, their aisles empty, the goods on their shelves covered with dust.

What just one of these great merchants did is a stimulant to the imagination and an example that well might be followed by others, perhaps in not exactly the same way, but still followed in spirit.

Gordon Selfridge became convinced that despite the terrible expense of the war to the government, the individual would benefit through higher wages and through a stimulation of the thrift idea. He was sold on the idea that if he could only get the crowds to his store, his goods and the way he displayed them would do the rest.

So he advertised extensively urging that Selfridge's be used as a haven of refuge when the Zepps were Zepping; and he offered free blanket insurance to any one who was harmed in his store during an air raid, agreeing to pay any person for injuries received in his store.

This got the crowds. Now when a Zepp warning is sent out, the crowds flock to Selfridge's.

But before he set out to get the crowds he had a quiet little conference with himself and came to these conclusions:

- 1—*The war will curtail the expenditures of the wealthier classes and to a lesser extent the middle classes.*
- 2—*The war will increase the income of the laboring classes.*
- 3—*Business will be as big as ever but it will be different.*
- 4—*Merchandise plans must be altered accordingly.*

So Selfridge put in immense lines of low-priced musical instruments; lines of new merchandise of

the kind that only the wealthier classes had purchased, but at considerably lower prices; clothing; new furniture in imitation of more expensive lines; household utensils; etc.

In fact, he built up his merchandise stock with goods that the laboring classes had never bought before, and which they could not buy now except for the fact that he brought the prices down to a level with their increased wages.

And what has been the result: It can be told best in Selfridge's own words, and in the way he told it to a gathering of American merchants in New York last week: Selfridge said:

"When the war broke out, we in London thought that business was going to suffer. But such was not the case. On the contrary, business actually improved, *and to-day trade is better in London than it was in 1914 when hostilities began.* Prices are higher and profits are higher. . . .

"I think that America will find the same thing is true. The only sort of business that will be hurt will be that which deals exclusively with luxuries, such as jewelry, highly expensive clothing, etc.

"But business men over here must remember one thing that we have found true, and that is that *business in war time is very different from business in peace time.* The proprietor of a store now must work ten times as hard as he did before, and must himself be responsible for many things he formerly delegated to subordinates. *He must above all things watch out for useless waste.*"

Here is an example of business forethought and planning that shows what can be done.

American business is going to be different just as is English business.

We may sell the same goods, but we are going to sell them in a different way. We are going to sell them because they make for economy or increased efficiency—because they are necessary and essential.

Selfridge did not have goods that peace-time England considered essential in war time. He got them.

America has the motor car which is everlastingly essential. It is going to be sold. But it must be sold in a different way from this date forward.

It must be sold because it is necessary and essential, because it makes for economy and greater efficiency.

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

What Is the Fault With 1918 Shows?

Editor Motor World: I have lived beneath the roof of the Grand Central Palace for practically a week and have just returned from the automobile show in Philadelphia. I am tempted to express my opinion of the fault that seems to lie with the shows of 1918.

I have freed my mind as forcibly as time would allow in the enclosed article.

If I have unearthed anything worth while, if I have uncovered a fault that should be remedied before the show season progresses further, and you consider the article written well enough, I trust that you can give it some space in your valued publication.—J. Bruce Keeney, Automobile Editor, Newark Ledger, Newark, N. J.

Motor Industry Needs a Barnum

THE National Automobile Show at Grand Central Palace and the Philadelphia exhibit of motor cars have passed into history leaving behind a somewhat skeptical public and a decidedly uncertain feeling among dealers.

Before the season progresses further won't it be a wise thing for show managers and exhibitors whose displays are being planned for the next few months to stop long enough and endeavor to check the fault of the 1918 shows?

Briefly, I believe it can be stated that the fault lies in the fact that the shows themselves do not live up to their advance publicity.

While we are talking "show" and seeking a remedy for a very apparent fault, why isn't it permissible to turn back the pages of history and endeavor to learn a lesson or secure a remedy from the greatest of all show-men, P. T. Barnum?

It may seem a long step from the days of Barnum to the war-scarred days of 1918. It may seem a step from the ridiculous to the sublime to attempt to learn in the tanbark and circus ring a lesson that can be applied to the conditions of the modern motor car industry.

Nevertheless we are dealing in this case principally with publicity and the general atmosphere of the entertainment and instruction that greet the public which has been guided to the shows by the efforts of capable press agents and factory advertising men.

Let it be said right now that the automobile shows of to-day have received the finest publicity of any similar exhibits since the initial automobile show gave the press agent his opportunity to do exceptional work. Not only has the publicity been exceptionally fine, but it has rung true in every respect and been given generous space in all publications wherever a motor car exhibit has been held.

The fault does not lie with the press work. Such being the case, let us consider for a moment the methods of the late king of showmen, P. T. Barnum.

If Barnum advertised a white elephant you can rest assured he had it, even if he was obliged to whitewash the brute every morning.

If he advertised a cherry-colored cat he had one, even though he may have been obliged to exhibit a black feline and impress upon the show patrons that there was such a thing as black cherries.

If he advertised a Cardiff giant he had one, although it may have required the art of a plaster moulder to produce the desired curiosity.

In other words, the man to whom has been credited the statement that the public liked to be humbugged lived up to his advertising, and the public went away from the "big top" satisfied that they had had their money's worth and telling their friends not to miss "the greatest show on earth."

It is in this fact that lies the fault of the 1918 automobile shows. Page after page of advertisements and news matter have impressed upon the public that the motor car is a necessity. Indeed the public by this time must be thoroughly convinced that life is quite incomplete without utilizing the assets embodied in the possibilities of a motor car.

In this frame of mind the public has attended the automobile shows of this year only to find that the atmosphere beneath the "big tops" had not altered from that of previous years. The exhibits are very much the same, naturally, due to the nature of such displays. There is also the old-time evidence that the motor car is a vehicle of pleasure and a total lack of evidence that it is a necessity.

Salesmen stand around in the same attitude of former years. The patrons approaching an exhibit are greeted with the

same old-time questions and arguments. Demonstrations are still restricted to emphasizing the good points of some particular chassis or body over that of its rivals.

The motor car industry is no white elephant which must be whitewashed to make it appear that which it is not. Neither is it a cherry-colored cat wherein arguments must be warped to meet an untruth, nor has it been obliged to create a substitute or imitation, as in the case of the Cardiff giant.

But what it does need is a new set of "bally-hoo men" (salesmen) who have been taught to deliver to the public the impressive truths that the press agents have so forcibly presented in the columns of the publications throughout the country.

The public expect to be told and shown that the motor car is a necessity from the moment they drop their tickets in the chopper until they have completed their tour of every "space."

There must be a changed atmosphere within the shows so impressive that the mind half made up through publicity will be thoroughly convinced upon investigating the merits of the cars themselves.

The sooner this lesson drawn from the life pages of P. T. Barnum is delivered to every corner of the industry, the sooner there will be complete co-operation between the publicity and sales departments. The public will leave the shows of the future satisfied, convinced and ready to impart the news to their friends that the automobile shows of 1918 are really different, better and more impressive than ever.—J. Bruce Keeney.

Rochelle, Ill., on Cash Basis

Editor Motor World: On Jan. 23 the trade in this city got together to operate on a cash basis, as follows:

We, the undersigned automobile and accessory dealers and repair shops of Rochelle, Ill., hereby agree that on and after Feb. 15, 1918, we will conduct our several businesses on a strictly cash basis, and all accounts are now due and payable.

This is necessitated by the unsettled conditions of the markets, the continual advance in prices of all parts and labor, and the fact that the wholesalers are requiring cash from us. Signed: Jas. Sherlock, Valentine & Son, D. M. Reed, C. E. Lazier, Graves & Holmes Motor Co., Rochelle Auto Co., A. M. Farnham.—Valentine & Son, Rochelle, Ill.

Thanks Motor World Representative

Editor Motor World: At a recent meeting of the Auto Trades Association of Pueblo we had the pleasure to have with us a representative of your publication, Mr. F. R. Crocker, who gave us some valuable reports and ideas in connection with our work of establishing a cash basis for the dealers of this city.

A vote of thanks was tendered Mr. Crocker for his assistance, and the secretary was instructed to forward same to the Motor World.—C. C. Tedford, Sec.

This Is the *Proper* Spirit

Jan. 21, 1918.

To the Members:

The coming Motor Show is going to be a splendid opportunity for the Kansas City Dealers to show the entire Southwest that they have the pep—and energy—to meet the adverse conditions which exist at the present time. But, to do this, these conditions must be met with optimism.

In other words, if old man Gloom is going to run the show this year and run the motor car business you may expect to see a lot of ramshackle and empty buildings on automobile row in Kansas City; but remember this, that this territory has the brightest outlook of any territory in the United States. While business may not be as good as usual it can be kept good if the men in the business keep enough fight in them.

If the motor car dealer in this section is going to sit around all winter with his feet on the stove and wail, he can expect his entire organization to do the same. So when the salesman goes out to see the prospect they will have a fine conversation about how terrible the war is for business instead of the salesman showing the business man that the motor car is the only way that he has to speed up his business and make more money to help support the war.

I dislike to hear motor dealers talk of the uncertainty of conditions. Of course, conditions are uncertain, they have been uncertain a great many times in the automobile business, but there is one thing that every motor car dealer should do at this time, and that is, to find

out whether or not his own business is on the proper basis.

There has been a woeful hazardlessness in the automobile business in the past. A great many motor car dealers are not going to survive, but it is not on account of war conditions.

As I have said in our meetings a number of times, the motor car dealer, who hasn't his business established on a proper foundation, would not withstand any sort of a storm. The shutting down of productions the coming year and the other conditions are going to upset some of the paper houses that have been built. If this dealer had built his business on a rock foundation and out of proper material, while it might be he would not make as much money or as great profits as in the past, yet he would make as much money and as much profit as the average business man makes on small sized investments.

The recognition which the motor car is getting throughout the country as a means to help conditions in transportation should give the up-to-date dealer a new vision from which to work. Much of the motor car selling has been done, in the past, from the wrong standpoint.

The necessity and utility of the motor car have been sadly overlooked by salesmen, but from now on it must be on this basis, and this means that your salesmen must be recreated, must be educated along a different line of selling arguments, must be brightened up and made to believe that it is not only an opportunity but a duty that motor cars be sold, so that business and industrial conditions

for making money may be maintained, and I hope that everyone of our members who receives this letter will make an effort to get his sales force together each week and keep them full of enthusiasm along these lines.

I also hope that a letter will be sent out to all of your sub-dealers reflecting the feeling that I have tried to put into this letter. When it comes to our Motor Show, we do not want anyone around this show who is a "sob-sister." If you find a salesman who insists on consulting old man Gloom every morning send him home. Nor do we want your sub-dealers bringing in from out in the country their grips full of gloom.

I believe a great deal in mental attitude. I do not believe that it will overcome everything, but with the fundamental facts before us that we are selling transportation and transportation is needed more to-day in this country than anything else, I can see no reason for anyone turning his automobile business into a gloom factory.

I am leaving to-night to visit the Cleveland, Detroit and Chicago shows. I expect to make a talk before several groups of automobile dealers and the contents of this letter will reflect something of what I expect to say to them, and it is offered to you as an antidote against some of the arguments that we have heard as to why we should not hold a motor show, and why this, and why that, and I hope you will accept it in the spirit in which it is given.—Kansas City Motor Car Dealers' Association, E. E. Peake, Secretary.

Entire Proceeds of Duluth Show for Red Cross

Editor Motor World: In your issue of Jan. 23, page 49, we note the Duluth Automobile Trade Association has unanimously voted to donate the entire proceeds of its fourth annual automobile show to be held the week of Feb. 23, which will represent several thousand dollars, to the American Red Cross Association, thereby doing their bit as an association.

Please be advised that the week of Feb. 23 is an error and should read Feb. 18. The mistake, however, is ours as the telegram read exactly as you have published it. Some way or another we got

mixed up in our dates when we sent the telegram. It might be a good idea to correct the date at some future issue. We note, however, that your show calendar gives the correct dates, namely Feb. 18 to 23.

In connection with this proposition, we might state that at a meeting of the association the first part of January a suggestion was made that some arrangements be made whereby either a part or the entire proceeds of our show could be donated to the Red Cross Association.

After discussing the matter pro and con the executive committee was instructed to put the matter up to the officers of the Red Cross Association in Duluth. The committee met with the

Red Cross committee and offered them the entire gross receipts of the admission tickets of our show, provided the Red Cross Association would take charge of the sale of the tickets and, in fact, the collection of same at the door, which proposition was accepted.

Since that time the Red Cross Association have appointed an executive committee to handle the sale of admission tickets consisting of ten prominent men, members of different clubs, lodges, and trade associations in our city and we are going to open the show on Monday, the 18th, with a great big civic parade, in which unions and societies will participate.—Duluth Automobile Trade Association, L. H. Thiatault, Secretary, Duluth.

The RETAIL NEWS

SOUTHWEST

W. A. Smith, Burns, Kan., has bought the garage of J. O. Bunting.

Chas. Teaterman, Green Leaf, Kan., has taken possession of the White Way Garage.

The Lyons Machine Shop Garage, Lyons, Kan., has been sold.

Tony Vleck, Ellsworth, Kan., has bought the garage of the late Wm. Bender.

Fred Brocksmith, Augusta, Kan., has opened a vulcanizing shop in the Richard and Wedel hardware store.

Kern & Harvey, Great Bend, are remodeling the interior of their garage.

Frank Dunn, Gardner, Kan., has bought the interest of his partner Frank Griffin in the Garder Automobile Co.

Fred Perkins and Grant Reed, Peru, Kan., have leased the garage of E. H. Murry. The firm is styled Peru Motor Car Co.

W. A. Smith, Burns, Kan., has bought the garage of J. O. Bunting.

Bruce Carter, Wilsey, Kan., has bought the Lyman Pirtle garage.

Chas. E. Bensist and James Fenimore, Pittsburg, Kan., have bought the Pittsburg Motor Co.

Billy Williams and J. C. Broadley, Pittsburg, Kan., have taken over the Smith garage.

Geo. Hall, Dighton, Kan., has bought a half interest in the Wickham garage.

Walter Husong, Herndon, Kan., has bought the Hugh Hall garage.

L. E. Ochampaugh, Stockton, Kan., has bought the White Way Garage.

Roy C. Fowler, Lucas, Kan., has bought the Thorp & Campbell garage.

Perry R. Irey, St. John, Kan., has bought a half-interest from his father, H. M. Irey, in the Traveler's Aid Garage.

Glenn R. Donaldson, Kansas City, former president of the Kansas City Tire & Accessory Co. and Thomas E. Hafer, Mason Tire Co., have purchased the 336 Tire Service Co. and leased new quarters at 1734 Grand Avenue.

J. X. E. Cloopfil, Hamburg, Mo., has moved the offices of his garage to larger quarters. The space in the garage formerly used for an office has been converted into a showroom.

W. A. Hollabough, Wheaton, Mo., has bought the local garage.

Hiram Swope, Sedalia, Mo., has bought the Elcar Garage, formerly run by J. F. Smith at 212 South Osage.

The Crane Garage, Chandler, Okla., has taken over the garage of Crane & Anderson. J. C. Dodson, Shattuck, Okla., has bought the garage in the Flathers building. It is styled Dodson Garage.

R. M. Macey, Bartlesville, Okla., is the proprietor of the new Auto Salvage Shop.

J. H. Hoffman, Muskogee, Okla., has bought the 3-story Stephenson building, which he will remodel for a salesroom and service station.

H. Wells, Purcell, Okla., has bought the interest of Perry Duckett in the firm of Wells & Duckett.

Frank Madearis and Tom Stewart, Seymour, Tex., have purchased the repair department of the Quick Service Garage.

K. E. Nutt, Allen Tolbert and Chas. Kerr, Midland, Tex., have sold the Western Auto Co., to Clayton Bros.

J. F. Neff, Athens, Tex., has sold his interest in the Service Garage to A. F. Wood.

Border Tire Sales Co., Del Rio, Tex., has bought Gordon Addie's repairshop and will

run it in connection with the tire and accessory business.

Hall & Turner, Waco, Tex., have moved their tire and accessory business to larger quarters in the Masonic Building.

Roy Lynn, Angleton, Tex., has opened new salesrooms in the Crockard building.

Interstate Garage and Storage Co., Fort Smith, Ark., will move into a modern building on Eighth and A.

The Automobile and Motor Truck Hospital, Little Rock, has opened at 910 Main St. to do general repair work. Phelps Bros. are in charge and C. W. Hewett, Chalmers Motor Co., is associated with them.

New Garages.

Otto Haller, Jr. (addition).....Winkler, Kan.
Jackson & Son (addition).....Argonia, Kan.
J. R. McKnight.....Sterling, Kan.
Fixit Garage (addition).....McCune, Kan.
S. H. Dock.....Hiawatha, Kan.
J. F. McKnight.....Sterling, Kan.
A. A. Newman.....Arkansas City, Kan.
P. W. Erbe.....Pittsburg, Kan.
Carl Robinson.....Nortonville, Kan.
Mackinder Bros.Joplin, Mo.
Louis J. RingeSt. Charles, Mo.
Riddell Mfg. & Supply Co.Joplin, Mo.
State Highway Garage (addition)

St. Charles, Mo.
St. Charles Garage (addition)

St. Charles, Mo.
Interstate Garage & Storage Co.

Fort Smith, Ark.
J. A. Meacham.....Judsonia, Ark.
G. A. Eager.....Tecumseh, N. M.
Liberty Garage & Service Co. ..Tulsa, Okla.
Griffith & Cox.....Seymour, Tex.
J. R. Hill.....Athens, Tex.
Rose & Pitman.....Haskell, Tex.
Bowling Brothers.....Cause, Tex.
Mallery & Smither.....Huntsville, Tex.

PACIFIC COAST

The Solano Construction & Electrical Co. has opened a Willard Battery Service station at Suisun, Cal.

F. G. Johnson has purchased the repairshop connected with Norton's Garage, Napa, Cal.

C. E. Welgele has added an automobile repair department to his blacksmith's shop, Dixon, Cal.

Leach Motor Car Co., Los Angeles, distributor of the King, Dort, Premier and Liberty cars, has taken over the Pathfinder salesrooms on Olive Street.

The John A. Walter Service Station, Portland, has added a vulcanizing plant.

F. B. Goodpasture, Eugene, Ore., has opened charging stations for the Philadelphia Diamond Grid storage battery in the main cities of 6 Oregon counties.

The Oldsmobile Co. of Oregon, Portland, has leased additional quarters, where a salesroom, parts room and service shop will be opened.

Autoparts Supply Co., Portland, has moved to larger quarters.

Kilne & Winningham, Seattle, have leased quarters at 579 Railroad Avenue and will distribute Maxwell and Chandler cars and trucks.

Inland Battery Co., Spokane, has moved to new quarters at 1215 Riverside Avenue.

New Garages.

George Carl.....Carleton, Ore.
Charles Winterer.....Pullman, Wash.

Chase Garage Co.Woolley, Wash.
Eugene Pelkey.....La Center, Wash.

NORTHWEST

Theodore Cordes, St. Libory, Neb., recently sold the local garage to Buhrman & Son.

F. A. Woods & F. McMIndes, Sloan, Iowa, have bought the garage of Wm. Gulick.

New Garages

Coulter & Gritz.....Auburn, Neb.

MIDDLE WEST

A. H. Hartshorn, Deckerville, Mich., has bought his partner's interest in the firm of Hartshorn & Jones, Ford agents and service station.

H. C. Steffensen, Ionia, Mich., has opened a dealers' agency at the Burger Garage for the Gates half-sole tire, and will also sell accessories.

Jay White, proprietor of White's Garage, Three Rivers, Mich., has bought the Electric Service Station, formerly operated by S. J. Andreseak.

Grasser Motor Co., Detroit, has opened a new building at 490 Lafayette Blvd., and will handle the Republic truck.

Wilbert S. Hoesley, Monticello, Wis., has sold a half-interest in his business to Jacob Krieg, New Glarus, Wis. The firm will be styled Hoesley & Krieg, and will operate in the Jackson machine shop.

The R. T. Sales Co., Milwaukee, which has patents on a retreading process, will establish tire and repair shops in several cities of the Middle West.

New Garages

Wieder-Harness Co. (addition) ...Calumet
Alma Garage.....Alma, Mich.
Allen Auto Co.Shell Lake, Wis.
C. W. Collier.....Green Bay, Wis.

SOUTH

The Stetson Tire Co. has opened a branch office at Spartanburg in charge of J. W. Chambers.

G. T. Anthony has opened an accessories store at Washington, Ga.

New Garages

L. H. Smith & Bro.Elberton, Ga.
Gas Engine & Electric Co.Charlestown
Tavares Garage Co.Tavares, Fla.

EAST

Parsons & Co., Hartford, Dort distributor, has moved to larger quarters at 273½ High Street.

T. S. Pfeiffer, Philadelphia, Franklin and Peerless distributor, has moved to larger quarters at 209 West Market Street.

New Garages

Berger Garage, Seventh and Spring
Garden Streets, Philadelphia

The Philadelphia Storage Battery Co. has appointed the following representatives Fitch Electric Garage, Ft. Wayne, Ind.; McClatchey's Garage, Canton, Ill.; O'Kelley & Walker, Atlanta; Standard Automobile Co., Clarksdale, Miss.; Harris-Hupp Motor Sales Co., Decatur, Ala.; Garrett's Garage, Charlotte, N. C.; Chas. Gerlach, Pavilion, N. Y.; Hamburg Motor Car Co., Hamburg, Pa.; Hecke & Mackie, Newark; Mt. Kisco Supply Co., Mt. Kisco, N. Y.; Katonah Garage, Katonah, N. Y.; A. F. Wolke Rubber Co., Louisville, Ky.; L. E. Reed, Charles City, Iowa; R. S. Auto Co., Spartanburg, S. C.; Waltham Battery Service Station, Waltham, Mass.; Electric Service Co., Quincy, Ill.; and Thomas Bros., Oakmont, Pa.

H. J. Koehlers Motors Corp., Newark, has appointed the following representatives: Arthur M. Butts, Oneonta, N. Y.; and T. S. Culp, Mahoning Road, Canton, Ohio.

What St. Louis Is Doing

As Told by John H. Shuford, of the Bettel-Leftwich Co., at the Recent New York Meeting of the National Association of Automobile Accessory Jobbers

In April, 1910, a number of St. Louis jobbers, accessory dealers and car dealers met and formed an association known as the St. Louis Automobile Dealers' Association.

Two years later the St. Louis jobbers and accessory dealers formed the Motor Accessory Trade Association, employing a secretary at a yearly stipend and operating a credit bureau. This bureau has saved its members thousands of dollars.

The following officers are elected at the June meetings: President, vice-president, treasurer, secretary and six directors.

The Mayor and Street Commissioner of St. Louis are elected honorary members.

Each member is appointed on one of the following committees: Legislative, membership, publicity, safety, finance, show.

Four members of the association have been elected president, namely: Messrs. Norris, 1913; Campbell, 1914; Shuford, 1915; Allmann, 1916.

Through This Association

Created a spirit of friendliness between competitors.

Chauffeur graft was eliminated.

Locust Street was widened.

Headlight Ordinance passed.

Electric Railways Co. required to paint white all poles in middle of streets.

Erected sign-boards at dangerous crossings and curves.

Eliminated advertising graft.

Made possible a co-operative show.

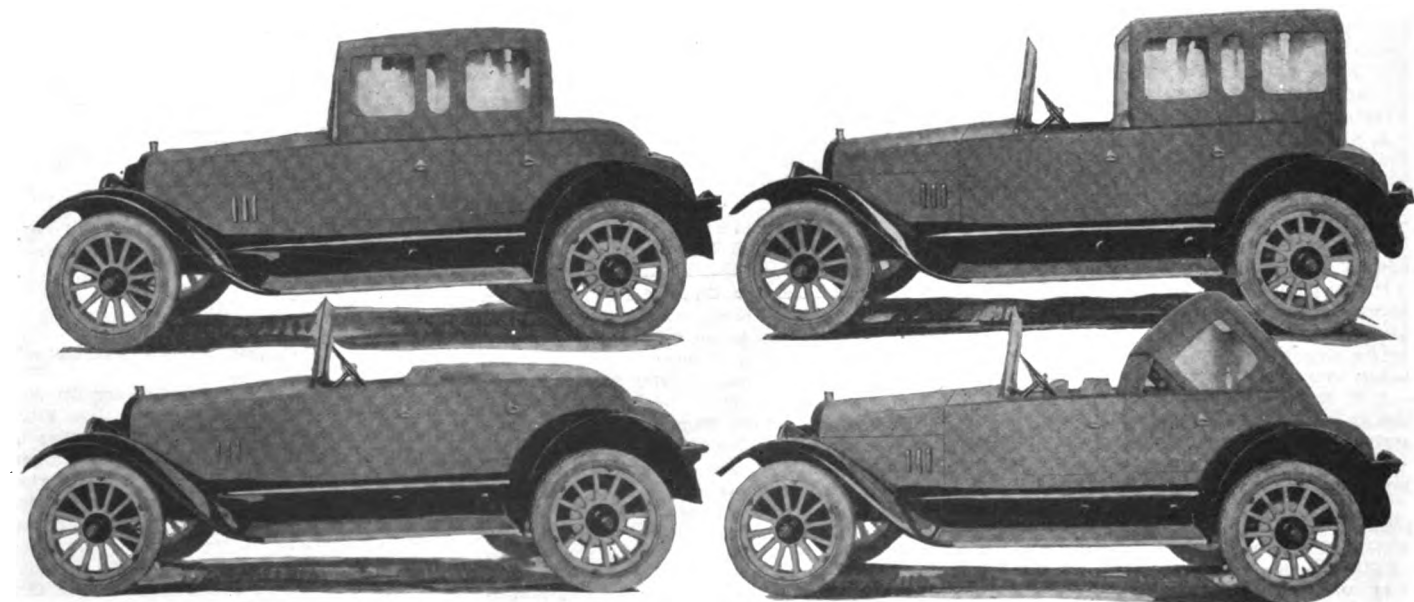
Meetings are held on the first Tuesday of each month. They are attended by members, their salesmen and credit men. Each person attending pays \$1 for dinner. After the dinner reports are received from chairmen of the various committees, and after discussion addresses are delivered by two speakers secured by the entertainment committee.

During 1917 addresses were made by the Governor, Mayor, Street Commissioner, License Commissioner, Police Commissioner, Director of Traffic, City Counselor.

Addresses were also made by representatives of the Advertising Club, Salesmanship Club, Traffic Club, Credit Men's Association and Chamber of Commerce.

At the last December meeting Fred Campbell was the principal speaker, his subject being "The N. A. A. J." He explained in a very able manner its objects; its accomplishment of a better understanding between manufacturer and jobber; the resolution regarding a charge of 10 per cent for returned merchandise.

A Body That Is Three Bodies in One



A CONVERTIBLE aluminum car body has been brought out by the New Carrm Tri-Standard Body Co., 30 East Forty-second Street, New York. By its use the car becomes at will a six-passenger landaulet, a three-passenger coupé or a two-passenger runabout.

The process of conversion is simple. The complete body top slides from front to rear to make the change from coupé

to landaulet. The after deck in this case is turned backward on trunnions, the exposed portion assuming a vertical position with its upper edge flush with the back of the top. The coupé door then becomes the entrance to the driver's seat and the rear door, unused in the coupé, becomes practicable for the landaulet.

In changing the car to a runabout the

forward part of the roof and sides fold inward and the entire top turns forward on a rear hinge and lies within the car body, making a close fit with the back of the forward seat. The back of the body thus forms the deck and completely closes the rear compartment.

The body is made for any chassis and will be manufactured in several other types as well. The price is \$2,500.

A Department of
BETTER MECHANICS
No. 56

Standard Adjustments on the Hupmobile Series R

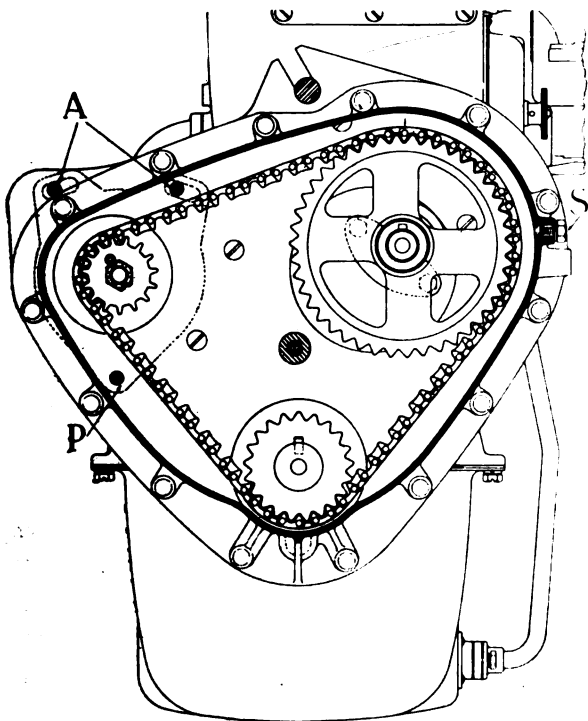


Fig. 1—Points of adjustment of the engine chain. This is effected by swinging the generator on its pivot stud P, after loosening the adjusting bolts A. Note the setscrew S, to be used in holding the chain in place, if the generator is removed

THOUGH the following instructions apply specifically to the Hupmobile Series R, the methods described pertain to many standard automobile parts. Included are the adjustments of the Morse "rocker joint" silent chain, the Stromberg type M carbureter, and the Jacox steering gear. These apply no more to the Hupmobile than to any other car equipped with the same parts.

TIMING CHAIN ADJUSTMENTS

The timing chain used on this model is a Morse "rocker joint" silent chain. Due

to the fact that any chain will stretch slightly, especially when new, an adjustment after the first 500 miles may be found advisable. After that, adjustment is rarely necessary.

The indication of a loose chain is a thump or knock caused by contact between the chain and the bottom of the chain cover. This is particularly noticeable when idling or when going slow.

The appearance of the chain with the front cover removed is shown in Fig. 1. However, for all ordinary adjustments it is not necessary to remove the front housing, as the generator is attached through a swinging plate that may be adjusted to remove all looseness. This is the method:

1. Loosen the two generator adjustment bolts and swing the generator on the pivot stud by hand and tighten the bolts.

2. Start the engine and note whether the chain operates with a humming or grinding noise at high speed. If so, the chain is

too tight and the generator should be swung back slightly until the humming noise stops. A small handhole is provided over the timing chain, and after the cover is removed part of the chain is accessible. By grasping the chain and pressing it first inward and then outward as far as possible, the amount of slack may be determined. The permissible slack is shown in Fig. 2, and applies in general to any Morse chain.

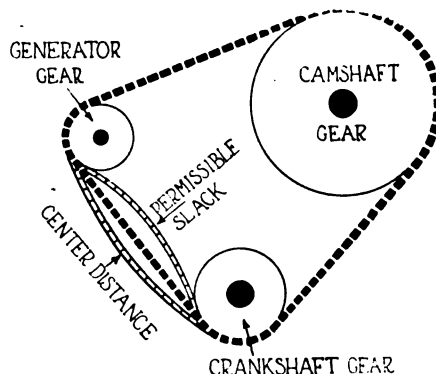
After a long period of service the chain may have stretched to such a point

that further adjustment through the generator slots is impossible. In this case a removable link, styled the hunting link, is provided, and in general two methods of manipulation of this link are possible to adapt the chain to almost any conditions of wear.

REMOVING TIMING CHAIN

The following is the method of removing the timing chain, permitting the hunting link to be removed or the necessary adjustments made:

1. Crank the engine until the distributor block in the igniter points directly toward the front of the car.
2. Loosen the rear engine bolts and place a jack under the bottom of an oil pan near the front and raise the engine slightly. This will permit the pin connecting the engine and frame to be removed.
3. Remove the fan assembly, together with the fan driving pulley.
4. Remove the front chain housing, taking off the cap screws holding the oil



MORSE CHAIN ADJUSTMENT TABLE

Longest Center Distance Between Gears	Permissible Slack
5 in. to 7 in.	$\frac{3}{8}$ in. to $\frac{1}{2}$ in.
8 in. to 11 in.	$\frac{1}{2}$ in. to $\frac{3}{4}$ in.

Fig. 2—On any Morse chain, proper adjustment is determined by finding the slack and making it equal to that in the table

pan to the housing and the timing sprocket cover to the crankcase.

The following is a point that must be carefully observed: In Fig. 1 at the right will be noted a set screw for holding the timing chain on the gear after the links have been removed. When the car is sent from the factory a short set screw or plug is used, and this can not be screwed in far enough to press against the chain. When it is desired to hold the chain a $\frac{1}{8}$ by 16 U. S. S. cap screw should be screwed into the hole tightly against the chain. This will prevent the timing from being disturbed in any manner. But, before the car is started the longer cap screw must be removed and the short cap screw inserted. Otherwise the timing chain and engine may be damaged.

5. Place the $\frac{1}{8}$ by 16 U. S. S. cap screw in position against the timing chain.

6. Loosen the three bolts holding the generator in place and swing the generator toward the crankcase.

The following is the method of shortening the chain by removing four links and inserting three others, one of which is a hunting link. The hunting link is a link of thin leaf section, as shown in Fig. 3, and differs in appearance from the other links. In removing the four links, first select a joint at the head of an arrow, and with a cold chisel cut the

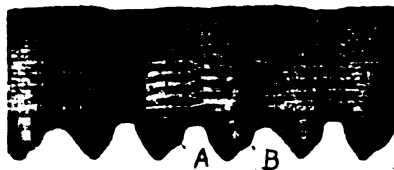


Fig. 3—The black link in the center is the hunting link



Fig. 4—This shows a chain properly shortened by removal of the hunting link

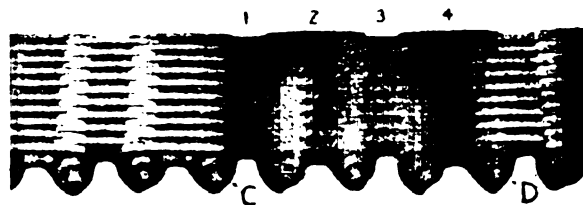


Fig. 5—Chains having an even number of links contain no hunting link, and are shortened by complete removal of four links and substitution of three links, one of which is a hunting link

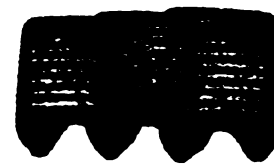


Fig. 6—Here are the three links to be inserted in place of the four shown in Fig. 5

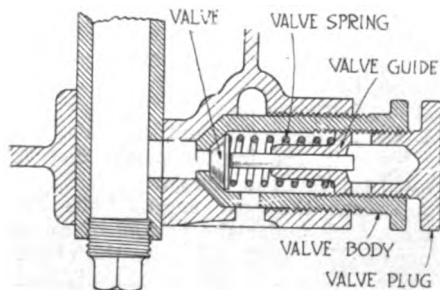


Fig. 8A—The oil pressure should show about 8 lb. on the gage at 15 to 20 miles per hour; and this is regulated by the tension of the spring of the oil pressure relief valve shown above

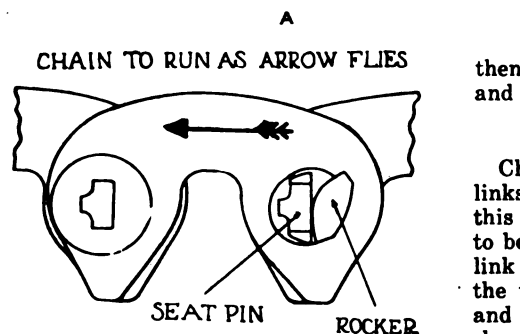


Fig. 7—The above shows the proper method of connecting the ends of a Morse silent chain. The ends are brought together as shown in A; the rocker and seat pins inserted as shown in B, and their relative positions when properly inserted are shown above



then be placed on the end of the seat pin and the free end riveted over.

REMOVAL OF HUNTING LINK

Chains containing an odd number of links include the hunting link. When this is present removal permits the chain to be shortened by that amount. Such a link may be removed after cutting off the washers A and B, shown in Fig. 3, and bracing the two ends together, as shown in Fig. 4. The rocker and seat pins should be inserted in the manner directed above.

With these three methods of adjustment, first by swinging the generator gear and later by link removal, practically all conditions of wear on the timing chain can be remedied.

OILING SYSTEM ADJUSTMENTS

The oiling system of this engine should require little adjustment, as it is properly set at the factory. By this adjustment the oil pressure gage should register about eight pounds at from 15 to 20 miles per hour car speed. This will vary slightly with the density of the oil used, and in winter will tend to be somewhat higher than in summer. But unless positive oiling trouble is noted, the adjustment of the pressure relief valve should not be disturbed. About the only thing that can cause this to be necessary is dirt or grit beneath the relief valve, shown in Fig. 8A, and this, indicated by a drop in oil pressure, necessitates removal and cleaning of the valve. However, oil strainers are provided that tend to remove most of the dirt and tend to make this difficulty quite remote.

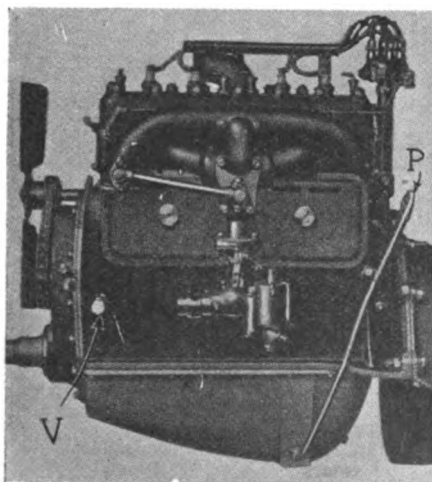


Fig. 8—General view of the engine indicating the location of the oil pressure relief valve V, shown in section in Fig. 8A, and the oil pump P and delivery pipe

washer C, Fig. 5, until it drops off. Move to the right four links and cut the washer D also at a head of an arrow in the same manner. If the washers removed are not at the head of an arrow the leaf plates of a three-link section will not mesh regularly with the chain.

The pins are driven from the joints C and D and the four links removed. A three-link section, shown in Fig. 6, is then inserted, taking care that the arrow on the new section points in the same direction as the arrows on the chain. The seat pin shown in Fig. 7 is next inserted, taking care that the notched side of the pin points in the direction of rotation of the chain. The rocker pin is then inserted from the near side of the chain, as shown in Fig. 7, with the pointed side of the rocker against the flat side of the seat pin, also in the direction of rotation of the chain. The washer may

The Hupp Motor Car Corporation recommends the use of a medium weight of oil and insists on the use of an oil that will stand the zero test in winter. Otherwise, the oil pump may be damaged or the engine injured through lack of lubrication. Three quarts of oil are required to bring the level to the required position, and this is indicated by an oil float gage. If the engine has been idle for some time, or the oil drained from the crankcase, it is advisable to prime the oil pump before starting to assure the circulation of oil from the first explosion. The oil pump is at the rear of the engine, as shown in Fig. 8, and after removing the $\frac{1}{8}$ -in. pipe plug at the top should be filled until it overflows.

As stated, the oil pressure relief valve is at the front left-hand side of the engine, Fig. 8, and should not be disturbed unless a drop in oil pressure is noted, or absolute over-oiling is present. In the first case, it is advisable to determine whether a sufficient supply of oil is in the reservoir, and, in the second, whether an oversupply is present. By decreasing the pressure on the valve spring, Fig. 8A, less oil is pumped, and by increasing the pressure more oil is pumped.

CARBURETER ADJUSTMENT

The carbureter used on this engine is a Stromberg type M, and the points of adjustment are shown in Fig. 9. Two adjustments are provided, the high-speed and the low, or idling adjustment. By turning the high-speed adjustment to the left, or counter clockwise, more gasoline is admitted; turning it to the right, or clockwise, less gasoline is used.

The gasoline for low speed is admitted above the throttle through the low-speed jet. The amount is regulated by the low-speed screw and the best adjustment is between $\frac{1}{2}$ to 3 turns outward. By turning the low-speed adjustment clockwise more gasoline is admitted, and by turning it counter-clockwise less gasoline is admitted. This adjustment does not affect the mixture above eight miles per hour and should be set so that the

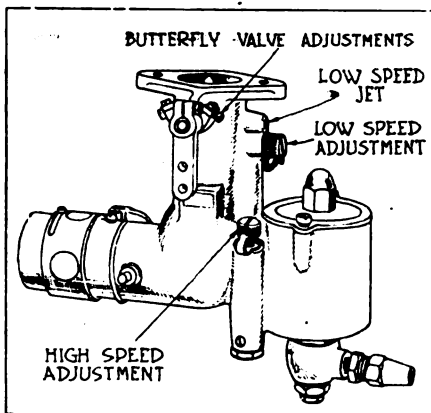


Fig. 9—The Stromberg model M carburetor is adjusted at the above points. Note the position of the low speed jet

engine idles steadily with a continuous hiss in the carbureter. A weak cylinder, manifold leak, or rich idling adjustment will cause an unsteady carbureter hiss.

Before making any final adjustments on the carbureter the engine should be thoroughly warmed up and the idling adjustment attained as above. The high-speed adjustments should be made subsequently until the best driving position is determined. It should be understood that the adjustment providing easy starting in cold weather is not always suited to economy or satisfactory operation. In starting it is absolutely necessary to use the dash, or steering-post control until the engine is warmed up, but this control should not be left completely shut, only for an instant. Otherwise raw gasoline may be drawn into the cylinders, diluting the cylinder oil.

The adjustments of the butterfly valve, Fig. 9, have little to do with the smoothness of the idling speed, but regulate it to the desired amount. The cold air sleeve should be set in a position determined by the temperature, being closed in cold weather and open in hot weather. It may be locked in place by the locking screw provided.

The valve tappets are readily accessible through the plates in the carbureter side of the engine. The actual adjustment differs but slightly from that on most engines, the proper clearance being .004 in. with the engine warm. A special gage marked "V. T." is provided for this car for this purpose, and this gage should always be used.

A feature of this engine is the ease with which the valve tappet assembly may be removed in units of four each. This is only necessary when a lifter becomes extremely noisy and it is desired to install a new part. To do this, the valve cover plate is removed, exposing the valves and lifter unit, as shown in Fig. 10. The four-valve lifter guide cap screws are removed, and the entire assembly taken out as a unit and the necessary repairs made. This permits a tappet repair to be made in 30 minutes that otherwise might take from one to three days.

BIJUR DIRECT SCREW SHIFT

These engines are fitted with the new Bijur automatic direct shift. This mechanism consists of a pinion attached to a barrel-shaped casing and mounted on the starter motor armature shaft.

When the starting switch is closed, causing the armature shaft to revolve freely, the inertia of the drive mechanism prevents it from rotating as a unit with the shaft. The result is that the whole mechanism travels longitudinally and moves a pinion into mesh with the flywheel gear.

Approximately once in every 300 starts the pinion teeth may not mesh smoothly with the flywheel gears but butt into the end of the teeth and do not grab. The pinion then simply compresses the large spring entering the barrel as it moves forward and as the correct mechanism exerts sufficient force to locate the pinion it is snapped into mesh with the flywheel gear. Normal cranking then takes place. This occasional hesitation is not serious.

(To be continued)

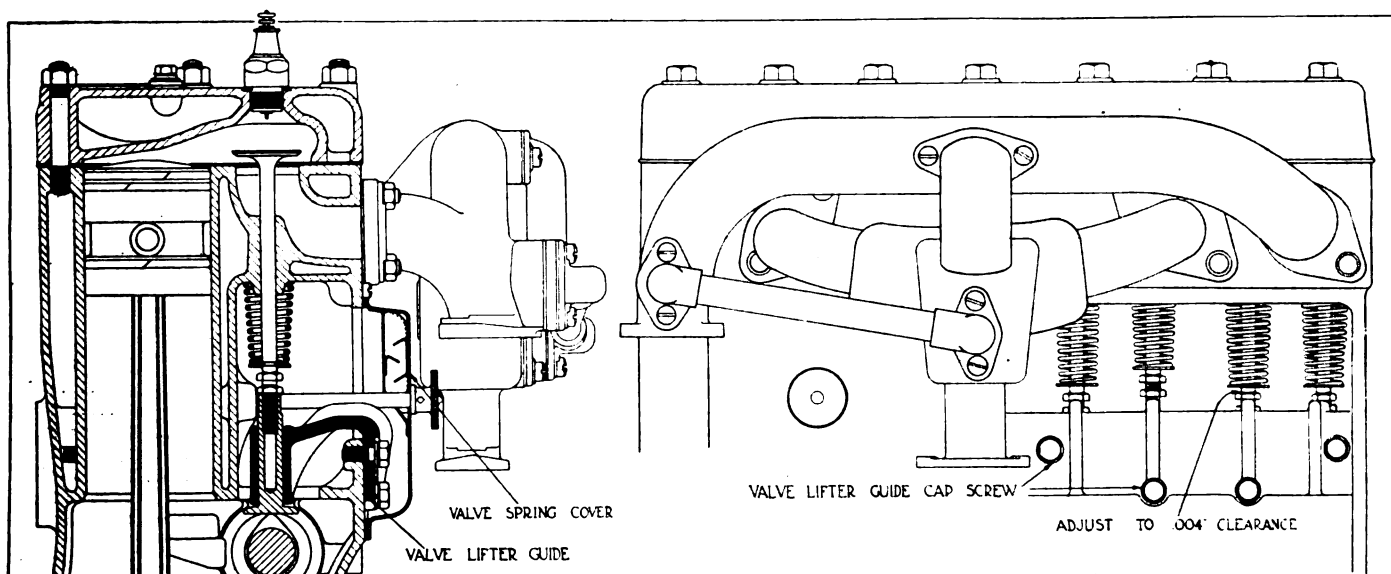


Fig. 10—These drawings indicate the case with which the valve tappet assembly may be removed

Repairshop Shortcuts

From The Motor World Roadman

No. 1547—REAR AXLE KINK

The differential gear at the end of the Ford axle is held in place by two half rings. Before the gear can be removed it is necessary to press it down on the shaft enough to permit these rings to be taken out. After this the gear may be pressed off in the usual manner. An arbor press fitting permitting this to be done comprises a tapered bushing into which fits a chuck. This chuck is caught against the axle shaft just below the gear hub and the gear pressed down and the keys removed. The chuck is then taken out and the hub of the gear placed against the bushing. The axle may then be pressed out of the gear.—W. V. Romine, Vollmer Bros., Colorado Springs, Colo.

No. 1548—REPLACING FORD RINGS

When a Ford piston has been pulled down, as when adjusting connecting-rod bearings, the lower ring is likely to expand and catch against the cylinder block. Because there is little room in which to work, it is very difficult to replace the ring. A good way to do this job is to expand an old ring over the ring on the piston, thus forcing it into the slot and permitting the piston to be pushed up into place.—B. H. Holden, Wilson, N. Y.

No. 1549—FORD COMMUTATOR GAGE

When setting the commutator on the Ford car a simple gage may be used to make the setting accurate. This gage is sheet steel and the larger hole is pressed over the head of the commutator spring bolt. The spark lever is fully retarded and the gage swung to a horizontal position. The next step is to bend the commutator pull rod until it hooks into the small hole, and at this point the commutator is in the correct position.—Ford Motor Co., Detroit.

No. 1550—REMOVING SPINDLE BUSHINGS

One simple method of removing spindle bushings from the steering knuckles of Fords is to loosen the blade from a hacksaw frame and after inserting the blade through the bushing re-attach it to the frame. A section of the bushing is sawn out and it is then a

\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

simple matter to drive the remainder out without damaging the spindle.—Arthur Truelsen, Shermerville, Ill.

No. 1551—A SIMPLE WHEEL JACK

A cheap and serviceable jack for shifting cars about the shop or in congested parts of the garage is made of a wooden platform of 1 in. material provided with ball bearing or roller castors. On this is bolted a frame of 2 x 4-in. pieces, one end of which can be lifted and held in position by movable handles as shown. The jack is just high enough to clear the axle when lying flat and has a lift of about 4 in.—W. J. Peterson, Mills & Peterson, Akron, N. Y.

No. 1552—FENDER COVER

When working on the engine of a car the fenders are often marred by the buttons of the workman or by placing tools on their upper surfaces. This may be prevented by canvas fender covers in the manner illustrated. The dimensions given are for the Ford car, but similar patterns may be made of paper for any car, the canvas cut and sewed together in the same manner.—Ford Motor Co., Detroit.

No. 1553—REPAIRING BATTERY TOPS

After a storage battery has been overhauled it is necessary to replace the top plates and seal them in position. A more workmanlike job may be done by pressing these plates down into the battery. This may be done by a special bench press, the direct pressure on the top being applied to wooden boards cut away to fit over the terminal posts.—Rae Cowdin, Willard Battery Station, Fort Collins, Colo.

No. 1554—FORD CYLINDER LAPPER

A good lapper is made by sawing in two an old piston at right angles to the bushings. A discarded valve spring is then stretched and bent in a half circle and inserted between the piston valves on the wrist pin to exert a constant pressure on the cylinder surface. A short piece of pipe or wood through the connecting rod bearing serves as a handle. If the motor is out of the frame a piece of bar stock may be used in place of the connecting rod. Hammer one end flat to about 2 in. diameter and punch a 3/4-in. hole in the flat end for the wrist pin. The other end is held in the breast or wall-drill chuck.—Arthur S. Gibbs, Gibbs Motor Car Co., Wilkes-Barre, Pa.

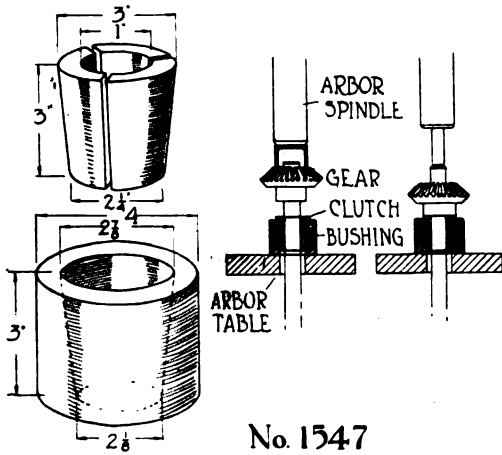
No. 1555—REMOVING TRUCK WHEELS

To assist in removing heavy truck wheels a simple skid can be made by placing a 2-in. board on top of a series of rollers made of old shafting or heavy pipe. Chocks are fastened to the board to prevent the wheel rolling.—C. C. Spreen, Flint, Mich.

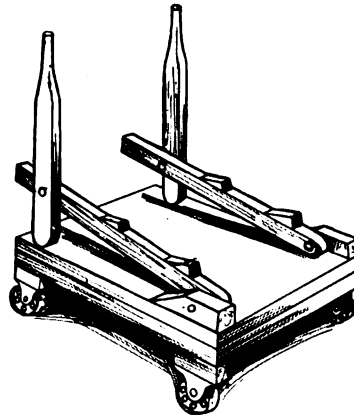
Scrap Metal Prices

NEW YORK, Feb. 9.—The scrap metal market during the past week has been very quiet. Following are the nominal prices paid by New York dealers. They are from *Iron Age*:

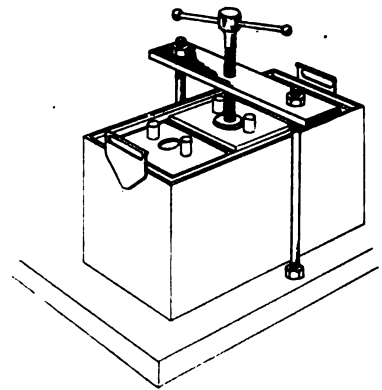
	Cents Per lb.
Coper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy	17.00 to 17.25
Brass, light	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow rod brass turnings.....	13.00 to 13.50
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.50
Lead, tea	5.25
Zinc	6.00



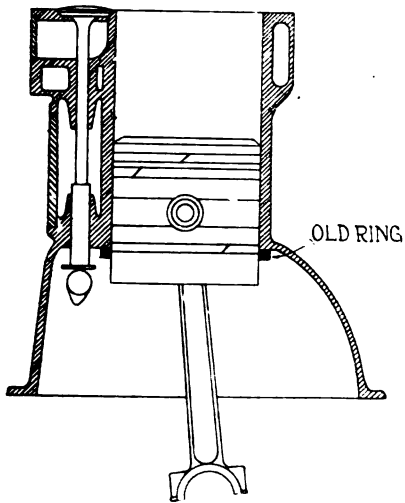
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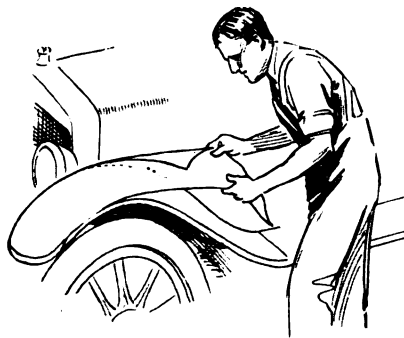
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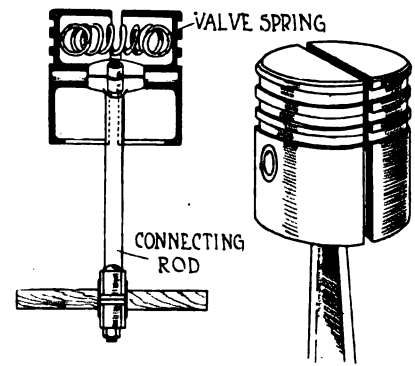
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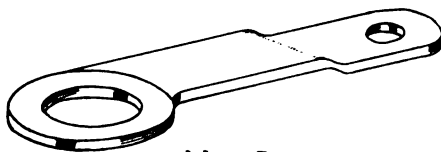
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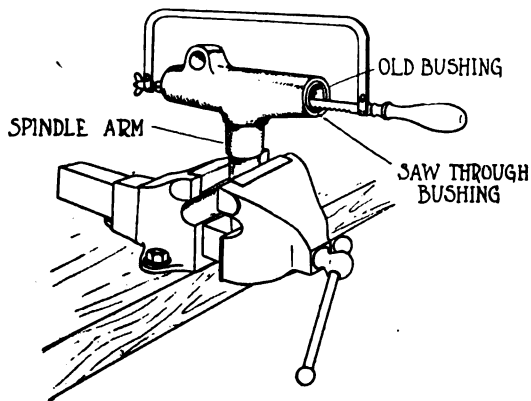
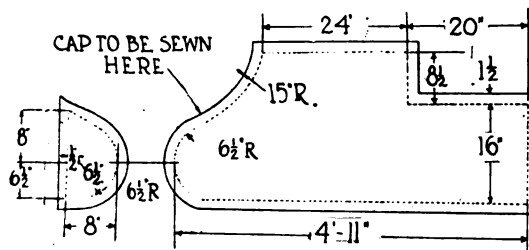
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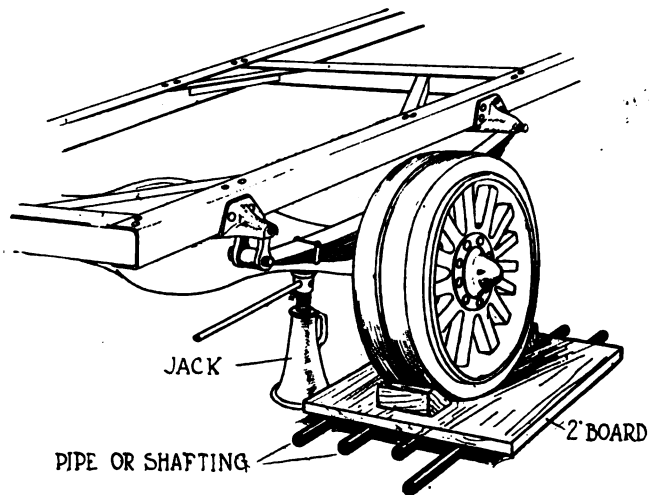
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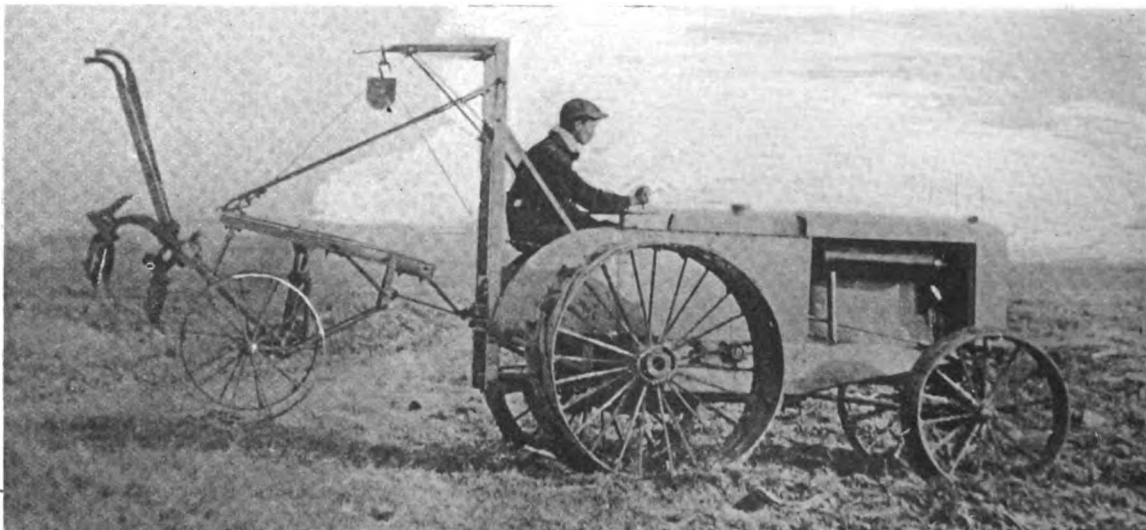
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No. 1555

Maxwell Develops 3-Plow, Inclosed Transmission Farm Tractor

Has Detachable Head $4\frac{1}{2} \times 6$ Engine, Three-Speed Gearset and Final Drive by Bevel Gears Through a Differential—Can Be Used for All Farm Work and Also on Roads



The new Maxwell farm tractor is a versatile machine and can be used for practically every kind of farm work as well as for towing farm products to market over the roads

THE Maxwell tractor, which was held under cover until the Chicago show and then sprung as a surprise at the annual dealers' banquet of the Maxwell-Chalmers distributors, is of a type which would naturally be expected from an automobile manufacturer. This tractor has been under development for about 5 years. It was concealed under the name of the "Chief" and received its real try-outs on the sugar plantations of Louisiana.

The tractor is a three-plow machine giving a plowing draw bar up to 3000 ft. lb., with a normal output of approximately 2600. It is a four-wheel type, weighing 3600 lbs. with tanks empty, and drives through two 48 by 10 in. rear wheels by means of an inclosed transmission. The tractor is, throughout, what may be called an automobile type, for, although nothing about it follows automobile practice, yet the layout is such as closely parallels automobile design. The wheelbase is 6 ft., and the minimum tread is 44 in. This, however, is adjustable, as will be explained later. The tractor can turn in a circle of 21 ft.

A frame construction is used, consisting of two deep angles with the flanges turned in so that the entire frame structure is virtually a U section. In this U rest the engine and transmission and all the working parts. The frame is 7 in. deep and is of semi-flexible nature, with a flexible front support at the center of a transverse spring mounted on the front axle.

This construction gives a tractor which is not affected by the distortions due to inequalities of the ground. The construction of the tractor is of two main units, the powerplant and the transmission.

The backbone of the powerplant is made up of the cylinder casting, which includes the crankcase, and a bell housing. The second part is a casting, which includes all the transmission gears and extends from the bell housing back to the rear axle.

These two component castings bolt together at the bell housing, giving a rigid central construction for the working parts and form the two distinct structures which go to make up the principal part of the machine.

The powerplant is a three-casting unit composed of the cylinder block above described, a casting for the head, which is detachable, and a casting forming the oil pan.

The engine proper is a detachable L-head unit of very simple design. The cylinder dimensions are $4\frac{1}{2}$ by 6, although this may later be changed to $4\frac{3}{4}$ by 6 to fit into a proposed production schedule involving a truck unit of heavy capacity. Nothing definite, however, can be stated on this at the present time.

The L-head engine is conventional in every respect with the exception that the water jackets are of much greater capacity than usual. The jackets extend to the bottom of the cylinder, so that there is a straight wall on the outside of the cylinder directly down to the crankcase,

giving a completely cooled unit of large water capacity.

The water area round the cylinder-head, which is a separate casting, is also particularly large with the water brought well around the spark plug aperture to eliminate any chance of hot points developing in their proximity.

The crankshaft is carried on three bearings and is a $2\frac{1}{2}$ -in. unit with all bearings $2\frac{1}{2}$ in. in diameter. The connecting-rod bearings are $3\frac{1}{2}$ in. in length and the main bearings are exceptionally large for the normal engine speed, which is 900 r.p.m. These bearings from front to rear are $3\frac{3}{4}$, $3\frac{1}{2}$, and $4\frac{1}{4}$ in. in length.

An interesting oiling system has been worked out. It is one of the few truly combined pressure feed and splash systems, as both the pressure feed and the splash are relatively complete within themselves.

In conjunction with the oil pressure feed, which operates through a drilled crankshaft, there are three pumps, one pump being located at the forward end of the crankcase, one at the rear end, and the third taking the oil from the sump and delivering it to the three main bearings, from where it is led by the hollow shaft to the connecting-rod bearings.

With these three pumps, if the tractor has to climb a stiff grade, and the oil should run to the back of the case, the pump at the rear will carry the oil back to the sump, where it will distribute to the main bearings. Should the tractor

be inclined to the front the front oil pump will act in the same way. Thus, in spite of the difference in purpose, a hint has been taken from aircraft practice.

The water system holds 10 gal. Water is pump-circulated through a vertical tube radiator with cast tanks. Ignition is by magneto, the make of which has not as yet been fixed, the magneto being equipped with an impulse coupling for starting. The magneto is driven from the water pump shaft through a flexible coupling. Gravity gasoline feed is employed, with a 26-gal. tank mounted behind and above the engine. The fuel employed is gasoline, and the hot-spot manifold design is employed to provide for evaporation.

With this engine of the 4½ in. diameter type, 29 hp. is delivered at 900 r.p.m., which is the governed speed. The governor is a gear-driven unit on the same shaft as the fan.

A cone clutch faced with asbestos fabric is inclosed in the bell housing, and the service brake is mounted on the reverse side of the clutch. Thus when the clutch pedal is depressed, the cone, which has a diameter of 16 in. and a face width of 3 in., is first pulled out of the driving member and a further depression of the pedal results in bringing the brake into effect.

The transmission gearing provides three speeds, the ratios being such that on high gear the tractor travels 6 m.p.h. at 900 r.p.m.; on intermediate, or plowing speed, 2¼ m.p.h. at 900 r.p.m.; and on low, 1½ m.p.h. at 900 r.p.m. The transmission gearing is all mounted on anti-friction bearings, and none of the center to center distances of these bearings exceeds 14 in.

The final pinion has a 7 in. face and the rear axle gear a 6 in. face. All of these are chrome-nickel gears running in oil.

The drive passes from the clutch shaft through bevel gears to a transverse shaft. This engages in turn with a second transverse shaft, carrying the reduction gear, and from this second transverse shaft it passes back through the final pinion to the rear axle.

The first transverse shaft has a pulley



This shows the Maxwell tractor equipped for use on hard roads. The design is compact and follows the usual practice with the engine under a hood at front

on the right end and a winch or cable hoist on the opposite end.

By means of these two devices any work desired by farmer, contractor, or any other type of engineering farming or construction work requiring animal power or mechanical power can be performed. The tractor can lift itself off the ground if that is desired, or it can lift wagons to points where they can be dumped in their entirety if the tractor is used by contractors who need that sort of assistance.

The pulley makes it possible for the farmer to use the tractor as a stationary powerplant, and a snubbing block can be fitted over the pulley if desired for work in which a device of this kind gives more practical assistance.

The rear axle carries the differential mounted on the outside and the axle itself is hollow, and after it passes through the differential housing, it drives through tubular units which can be added to by inserting additional members which really

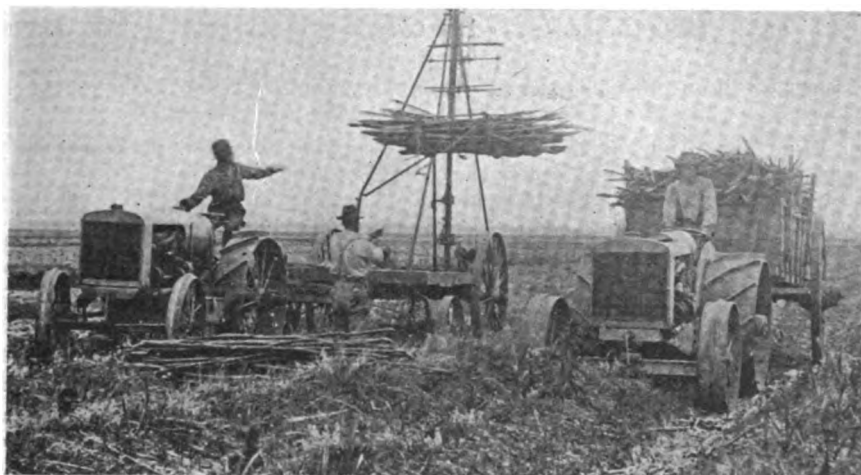
form part of the rear axle, thus giving an adjustable tread.

The combination of the adjustable tread and adjustable draw bar and the provision of both cable hoist and pulley, or snubber block, together with shieve combinations, allow practically any work to be accomplished with this tractor that is desired. The load can be attached to the draw bar at any point, and if desired this can be used as a frame to which a small crane can be attached. The tractor has been designed throughout with an eye to maintenance, and all parts are readily accessible, the oil tubes, for instance, all being exterior so that they can be taken out and cleaned. There are two oil wells, one for the engine and the crankcase, and the other in the gearbox supplying all the transmission gearing. The oil is circulated in the gearbox by means of a gear wheel which picks it up and allows it to flow over to the surfaces.

The tractor is not in production as yet, but will be as soon as it is possible to co-ordinate the Maxwell-Chalmers plant which at the present time is doing considerable Government work. The manufacture of the tractor will not interfere with this, however, and production will not be long delayed. The price of the tractor is not fixed and cannot be until production is started and costs accurately estimated.

Ryan and Hughes Join Hands

NEW YORK, Feb. 9—Fred. J. Ryan, president and general manager of the Circle Auto Supply Co., and Robert E. Hughes, formerly manager of the retail branch of A. J. Picard & Co., have formed the Ryan & Hughes Co., Inc., and will retail accessories. Headquarters are at 1698 Broadway. As has been previously reported, A. J. Picard & Co. has quit the retail field and hereafter is to devote itself exclusively to wholesale trade.



The new Maxwell tractor can be used for practically every job about the farm, from plowing to operating other field implements and towing produce to the market

We Should Have a Liberty Tractor

Its Development Would Equal 10 Years of Ordinary Progress—Standardization Needed

By George T. Strite

Tractor Engineer and Designer, Member S. A. E. Tractor Standards Committee

I BELIEVE the time has arrived for the Government to proceed to design and produce a "Liberty Tractor." The tractor should not be an experiment but should embody the best features employed in present tractors now on the market. By doing this I sincerely believe that three most vital and necessary things will have been accomplished and at least 10 ordinary years of progress and development of the tractor will be brought about in 2 years.

First, I would say that the food situation and its prominent place in connection with winning the war makes it imperative that tractors, good, efficient ones, I mean, be turned out in sufficient quantities to take the place of horse, mule and man on the farm. Every manufacturer in the advertising matter he puts out speaks of increase in production of foodstuffs by use of the tractor. Farmers are convinced of their usefulness and are only asking, "Which one?" It has been proven by demonstration.

In the second place, it may be truthfully stated there is too great a variety of designs and sizes in the tractors now being turned out, many of which are uncalled for. The future of the tractor depends upon the manufacturers producing as few types and sizes as possible to meet all conditions.

For instance, every tractor manufacturer at present makes an individual front axle, no two being alike. There is

absolutely no excuse for this. If a standard axle for each size can be brought out by the Government, I believe that eventually it will be used by seventy-five per cent of the manufacturers, principally by the reason of decreased production cost and the ability to secure repair parts without delay, which also would apply to all parts.

Again in the third place, what will standardization mean in thousands of individual cases to the farmer who needs a repair part, which, if he failed to get quickly means expensive delay and added expense? It means that his tractor could be kept at work at the opportune time which standardization will bring about.

For the Government to produce a "Liberty Tractor" it is apparent it will be necessary to draft a number of tractor engineers, men of successful experience such as may be found within the ranks of the S. A. E. The whole proposition could be handled by the Government similarly to the manner in which the Liberty motor truck is being produced. Different parts could be made in certain picked factories which are best equipped to manufacture certain individual parts. One or two plants could do the work of assembling, one in the East for foreign shipment and one in the West for domestic distribution.

I do not wish to be understood as being in favor of the Government stepping

in as a competitor to the present tractor manufacturers. I believe the Government should supply tractors to farmers who are unable to purchase tractors through the usual channels, either from lack of money or non-production by the manufacturer. It should be further understood that after the war no manufacturer would be restrained from making the Liberty tractor or using any part of it in his own tractor. The benefit to the manufacturer would probably be able to purchase the standardized parts cheaper than he could make them.

The final result of the production of this Liberty tractor worked out by the combined S. A. E. engineers and made by the Government during the war will do more toward general standardization than all the manufacturers and engineers put together can do in years.

Lack of time to co-ordinate in this work is delaying its accomplishment. The co-operation of engineers and manufacturers can only be brought about in this manner as it is impossible for them to get together otherwise on account of petty jealousies and pet ideas in their own tractor. The development of standardization will result in the greatest good to all alike, both the farmer and the manufacturer and will help largely to win the war through increased food production. If the war keeps up after 1918 the fullest benefits of standardization will be realized.

Collecting Money by Mail

How to Reduce Credit Losses and Pointers to Observe When Extending Credit

LOSS through extended credit is the greatest leak in the repair shop, garage, or accessory store—or in any other line of retail merchandising. Many dealers have settled this once and for all by adopting a strictly cash business system. But this is not always possible, and where it is difficult, care in the extension of credit, the use of shortcuts for handling collection details, and the systematic follow-up by collection letters will greatly reduce the loss. The A. W. Shaw Co. of Chicago has published a book entitled, "96 Proved Plans for Collecting Money By Mail." In this are shown tested plans reducing credit losses, proved ideas, and letters that collect, together with the correct methods of handling collection de-

tails. Here are a few of the methods outlined in the book—and any dealer can take them and apply them directly to his business.

286 Plans Boiled Down

According to results of investigation of the methods used by 286 merchants, six broad policies contain their methods of reducing credit. The following are the policies:

1. Securing a distinct understanding of terms and limits.
2. Handling customers according to their individual situations.
3. Co-operating with fellow merchants.
4. Making collections monthly.
5. Being impartial.
6. Securing new accounts on the basis of the additional convenience, instead of the

unusual ease with which goods may be purchased.

First—Impress the Customer

When a man asks you for credit he is seeking a favor, and not doing you one. The time to impress upon him the necessity of an early payment is then, for later his attitude changes.

Second—Don't Trust the Postmaster

There should be a stronger medium of contact between the dealer and the debtor than the postmaster and his stamp. *A personal contact is essential.* While the small dealer can know every customer on his books, this is difficult for the larger dealer. The latter should keep card

records detailing the characteristics and previous relations with the debtor.

Third—Pull Together

If Jim Jones' garage across the street will give anybody unlimited credit, both you and he suffer. He doubtless suffers most, but you too feel forced to grant more liberal credit to your customers. Co-operation with your fellow dealers will place the automobile business on a fairer basis. This can be done in a simple manner or elaborately, as circumstances may require, but the dealers should get together.

Fourth—Follow-up Statements

Lax collection methods on the part of dealers encourage slack payments by the debtor. *The answer is to get after the debtor and keep after him.*

Fifth—Be Square

Any dealer who carries "pets" on his books will find that his competitor who treats everybody alike has a better net profit. You must be square with every customer and eliminate all partiality. Favoritism makes trouble in credit affairs as it does in all others. It does not help the one receiving credit on a favoritism basis and promotes distrust in the minds of those not receiving favoritism. Remember that business is business.

Sixth—Credit Is a Customer's Convenience

The dealer should not advance credit with the idea of getting the goods in the hands of the customer with the hope of an ultimate collection. It should be advanced only when it affords the customer greater convenience. Credit facilities are worth advertising and supply you with a keen weapon against competitors, but an open statement that a credit account makes gratifications of wishes a matter of words, leads to slow collections.

Cash for More Garages

WHITEWATER, WIS., Feb. 9—The proprietors of five of the leading garages and repairshops at Whitewater, Wis., have adopted a mutual agreement to conduct their business on a strictly cash basis. Announcement of the new plan, which took effect Jan. 1, was contained in display advertisements in the local and neighboring newspapers, and read as follows:

"Whitewater garages and accessory dealers submit the following statement, effective Jan. 1:

"Know all men by these presents that we, the undersigned garage owners and motor car accessory dealers, do hereby make, sign and agree to the following articles of organization:

"Article I. The undersigned have associated and do hereby associate themselves for the purpose of withholding credit from those who deal with them, or any of them, except in accordance with the following rules:

"1. Each member of the association agrees to render a cash deposit to his each and every

customer on or before the third day of each calendar month for all work completed, supplies and materials furnished for and to his several customers and for which such customers have not settled in full.

"2. It is further agreed that each member of this association will on the 11th day of each calendar month, mail or submit to every other member of the association a complete list of the names of such of his or its customers of the preceding month, who have not by that date settled in full, and it shall then be the duty of each member of the association to withhold credit from any person or persons who have not paid their bills to any other member by the 10th of the month following that month for which a statement had been rendered.

"Article II. It is hereby agreed that each and every member of this association shall purchase a \$50 Liberty Bond, which shall be deposited with Merton R. Fish, as trustee, to be held by him subject to the order of a majority of the members, which said deposit shall be subject to the following conditions:

"1. That each and every member shall, in the event of his failure to comply with the rules of this association, as set forth in sections 1 and 2 of article I, hereof, forfeit his

deposit of \$50, and such deposit shall then become the absolute property of the remaining members of the association.

"2. That a majority vote of all the members of the association to the effect that a member has failed to comply with the rules of this association shall constitute conclusive evidence of such non-compliance and the person or firm thus forfeiting his or its deposit of \$50 then ceases to be a member of this association.

"Signed,

"Mason-Kraepelin Motor Co., Whitewater Garage, G. I. Flagler Garage, A. J. Gilbertson Tire Shop, Waters Garage."

St. Paul Tire Men Organize

ST. PAUL, Feb. 9—The St. Paul Tire Dealers' Association has organized and at the meeting for adoption of by-laws the officers of the Minneapolis association spoke of the aims and successes of their organization. St. Paul chose as officers: President, J. T. White; vice-president, Arthur Randall; secretary, Milton Rosen; treasurer, J. C. Stegmeier.

CRD-CDD

WAR DEPARTMENT
PERSONNEL DIVISION
OFFICE OF THE CHIEF OF ORDNANCE
WASHINGTON January 30th, 1918.

ADDRESS COMMUNICATIONS TO
RELATED SECTION, PERSONNEL DIVISION
1225 F STREET N.W.
WASHINGTON, D. C.

In replying refer to No.

Motor World,
231 West 39th St.,
New York City.

Attention Editorial Department.

Gentlemen:

1. I am directed by the Acting Chief of Ordnance to acknowledge receipt of your letter of the 29th and to thank you for the pages which you enclosed as requested.
2. In this connection it might be stated that your cooperation, in giving us this publicity, was the means of securing very many skilled and valuable men for the Ordnance Department.

Respectfully,
L. R. Dickinson
Lieutenant, Ordnance Reserve Corps.

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Ohio Trade Organizes First War Service Committee

*Will Link up Industry Throughout State
to Help Win the War*

COLUMBUS, OHIO, Feb. 9—Patriotism was the keynote of the special meeting of the Ohio Automobile Trade Association held in Columbus, Feb. 6, for the purpose of organizing the Ohio War Service committee. The meeting was called by President A. E. Mitzel of the association and the board of directors after being called in consultation with the bureau of economies of the National Council of Defense.

Out of the meeting sprang a plan of organization for war work which is known as the "Ohio Plan." This plan, when completely formulated is expected to aid the federal Government to a large extent in the successful prosecution of the war. Enthusiasm for the plan was apparent on every side and unlimited support has been given to the war work by the rank and file of the organization.

As an evidence of the interest taken in the movement there were approximately 125 members of the organization who made the trip to the Buckeye capital to further the movement.

President Mitzel, who is intensely patriotic in his foreword to the members said: "There is urgent need for the establishment of a closer relationship among all those engaged in the respective trades, for the purpose of advancing their business and interests, and successfully meeting the present crucial conditions, that they may survive the extraordinary demands placed upon them by the necessity of our gigantic war program. There is particularly an urgent need for a more perfect organization among the men engaged in the retail automobile trade. We expect Ohio tradesmen to take the lead in this, as in all other great movements, for what Ohio does, all others will do. Let every Ohio automobile tradesman get behind this 'Great Ohio Plan.'"

The Ohio plan was originated by Arthur M. Crumrine, an organization expert of Columbus. It has its cardinal points the organization of automobile dealers, garage owners and accessory dealers in each of the 88 counties of the state. These separate county organizations are to be under a general executive committee named by President Mitzel. The committee named consists of James A. Henderson, Youngstown; Walter T. Gardner, Bryant; Frank Dudley, Norwalk; Earl Boyd, Martins Ferry; C. H. Welbon, Cincinnati; E. R. Swinger, Greenville, and W. E. Moler, Athens. In addition President Mitzel is a member of the committee ex-officio.

The chairmen of the various county organizations have been instructed to complete the organization in their sev-

How Ohio Helps the Government

To The Automobile Tradesmen of Ohio:

We have been asked by the Commercial Economy Board of the National Council of Defense to organize the Ohio Automobile Tradesmen into a War Service Committee.

What are the war's demands on you?

How are you going to meet them?

What have you got to do?

If you will answer the following questions, and return them to us, we will be able to assist you in solving your war problems.

The Ohio Automobile Trade Association has been authorized to assist in placing the business of the Ohio Automobile Tradesmen on a war basis.

We need your help.

Bring your answers to the meeting.

1. How many employees did you have on April 1, 1917?

2. How many have already gone into the service?

3. How many more are you going to lose?

4. How have you filled the places of those who have gone?

5. How do you plan to meet the shortage of men in your place of business?

6. What do you specialize in?

7. How can we help you?

8. What suggestions will you offer to help us put the AUTOMOBILE TRADESMEN OF OHIO on a war basis?

Send or bring answers to F. T. Price, Secretary, Room 210, Virginia Hotel, Columbus, Ohio.

eral counties at the earliest possible moment. Then full co-operation between the county organizations and the central body will be carried on by means of personal visits and correspondence.

One of the first things taken up was the sending out to all members of the Ohio Automobile Trade Association and as many non-members as it is able to reach a questionnaire. This questionnaire contains questions to be answered by the dealers, garagemen and accessory and tire dealers. When this information is tabulated the Ohio War Service Committee will be in a position to aid the Government in securing mechanics with which to operate the trucks, transports and aviation branches of the service.

In addition, the Ohio association is using its influence in securing enlistments of mechanics for federal service. To that end blanks have been distributed freely in every section of the state with the result that dozens of enlistments are traceable to this work.

An investigation of the industry shows that each repair shop can possibly save from one to three employees by eliminat-

ing all character of free service. This is the question put to the special committee of automobile men called before the economies bureau. The bureau did not say that such action would be done but wanted to prepare the dealer and the garagemen for such action, in case it was deemed necessary.

President Mitzel in a long speech took up the cardinal principles of the association and made a stirring talk on co-operation among automobile men. He called attention to the fact that the automobile industry is the third largest in the country and as such is entitled to grave consideration. He claimed that 10 per cent of the population of the nation is dependent on the industry for its livelihood and happiness.

"We are organizing not only for our own good but also for the good and protection of the people," he said. "We must have good service in return for good money and we then can hold our head up in the community. Do not make slighting remarks about any dealer in your city or in an adjoining city."

Mitzel urged that every member of the association adopt the cash basis in doing business and then many of their worries would be a thing of the past. He said that he would not go back to the credit basis again if he had to go out of business to-morrow.

A paper on "Garage Economy" was read by Andrew Auble of Akron, one of the live wires of the Ohio Automobile Trade Association who was instrumental in the formation of the association three years ago.

A. O. Wood of Akron had a paper on "Intercity Relationship" which was also filled with many good ideas. He pleaded for co-operation between the dealers and garagemen of adjacent cities.

A lengthy discussion was brought about over the method of voting to be followed at the annual meeting and called meetings of the organization. A part of the membership desired that voting be done by delegates selected by the local organizations affiliated with the parent body. Others wanted a system of voting by individual members for fear the cities having the largest numbers of members might be able to control the affairs of the organization. Suddenly after the discussion had become quite warm a motion to lay the entire matter on the table until the next meeting was carried.

The sessions closed with a big banquet at the Virginia Hotel, which was attended by more than 125 members. A. E. Mitzel, president, acted as toastmaster. He called on many of the members for toasts and they were responded to in a happy vein. The spirit of patriotism and good fellowship prevailed during the evening.

It was announced at the banquet that W. A. McCurdy, who has been Ohio Registrar of Automobiles for the past year and a half, had resigned that position to become manager of the Ohio Automobile Trade Association. He will assume charge of the affairs March 1, when his resignation becomes effective. McCurdy is known as an excellent organizer.

Jobbers of Columbus Form an Association

Eleven of the Leading Houses in Ohio Behind New Body — To Affiliate With N. A. A. J.

COLUMBUS, OHIO, Feb. 9—The Ohio Automobile Jobbers' Association, an organization of jobbers of the Buckeye State, was formed at Columbus last week during the meeting of the Ohio Automobile Trade Association. The organization had as its inception a call issued by H. M. Dine of Canton and Charles E. Justus of Columbus, who recognized the need for an organization of jobbers. The association has the backing of 11 of the leading jobbing houses of the state.

Steps will be taken to affiliate with the National Association of Automobile Accessory Jobbers. Practically all of the members of the new organization are members of the National association.

Officers were elected as follows: President, H. M. Dine, Canton; vice-president, J. C. Hipp, Cleveland; secretary, Victor Moon, Toledo, and treasurer, H. H. Brenner. A committee consisting of J. C. Hipp, H. H. Brenner and E. C. Deardorf was named to draft a constitution and by-laws. Another committee on membership was named as follows: H. G. Smith, Cleveland; A. I. Fishbaugh, Columbus, and Victor Moon, Toledo. These committees are to report at the next meeting to be held at Cincinnati, March 18.

The following firms were represented at the organization: The J. I. Cooper Rubber Co., Cincinnati and Columbus; The Dine-DeWess Co., Canton; The Fan-Far Co., Cleveland; The Griswold-Sohl Co., Columbus; The Ohio Rubber Co., Cincinnati; The Justus & Parker Co., Columbus; The Roberts Toledo Auto Co., Toledo; The Toledo Rubber Co., Toledo; The Toledo Tire & Supply Co., Toledo, and The Union Supply Co., Toledo.

Reo to Make Worm Drive Truck

LANSING, Feb. 9—The Reo Motor Car Co., which has been making only a 2-ton chain-drive truck, is now experimenting with a worm-drive truck of the same size and similar design. This will be ready by spring, but no details of it are available yet.

Mohawk Adds Combination Tube

AKRON, OHIO, Feb. 11—A combination 30 x 3—30 x 3½ tube has been added to the line of Mohawk Quality tubes. It is made in both pure gum and red, and the list price is \$3.80.

National Prices Increased

INDIANAPOLIS, Feb. 11—The National Motor Car & Vehicle Corp. have increased the prices of all 6- and 12-cylinder models, excepting the convertible sedan. The new prices go into effect immediately, in accordance with the pre-

diction made at the New York and Chicago shows.

Prices follow:

Model—6-Cyl.	New Price	Old Price	Increase
7-Pass. touring.....	\$2150	\$1995	\$155
4-Pass. roadster.....	2150	1995	155
4-Pass. phaeton.....	2150	1995	155
Sedan	2820	2820	..
12-Cyl.			
7-Pass. touring.....	2750	2595	155
4-Pass. roadster.....	2750	2595	155
4-Pass. phaeton.....	2750	2595	155
2-Pass. dispatch roadster	2850	2750	100
Sedan	3420	3420	..

Tractor Coming from Alma

ALMA, MICH., Feb. 7—The R. & P. Tractor Co., incorporated with a capitalization of \$500,000, will shortly commence manufacture here in a wing of the Republic Motor Truck Co. plant, where it will continue to operate until a new plant is erected. The tractor is the product of the ideas of F. W. Ruggles, president of the Republic company, and Channing Parsons, formerly general manager of the Republic company. The directors elected at the stockholders meeting are: F. W. Ruggles, Channing Parsons, E. L. Smith, T. A. Burt and Harry Green. The officers are as follows: President, F. W. Ruggles; vice-president and general manager, Channing Parsons; secretary, Harry Green; treasurer, T. A. Burt.

About the Income Tax

THE chart compiled and published with the Income Tax article last week was not intended to include the excess profits tax which applies to individuals, partnerships and corporations.

The reason this was not included was because only certain individuals, such as professional men or those engaged in occupations with nominal or no capital are required to pay 8 per cent on their net income for the taxable year over \$6,000 derived solely from the profession or occupation, while individuals in business with capital are taxed on the basis of both capital and income at rates of from 20 per cent to 60 per cent in excess of certain specified deductions.

Under this law domestic partnerships having a net income of \$6,000 or more must file a return; every corporation must file a return and individuals whose incomes exceed \$6,000 must file returns.

Individuals need report their income from their business only in connection with this tax as no other income is subject to it.

This law is so complicated and is so unsatisfactory that there has been much criticism of it, and it has been reported that it would be repealed by March 1 and a new law substituted in its place.

Exclusive Truck Show Planned in Milwaukee

Dealers Schedule Exhibition for October—Spring Show Planned for April

MILWAUKEE, Feb. 11—Due principally to the demands for space occasioned by the annual Milwaukee show, conducted by the Milwaukee Automobile Dealers, Inc., the management of the Milwaukee Auditorium to-day started work on improvements costing about \$75,000, which will provide an exposition hall, 100 x 225 feet, in the basement of the structure, and effect other additions of floor space for exhibition purposes.

The results of the motor truck section of the 1918 show were so gratifying that the M. A. D. is planning to conduct another exclusive truck exposition early in October, at which time the winter use of commercial cars to relieve transportation difficulties such as arose during the present winter will be emphasized. The association intends to conduct a big passenger and commercial car and tractor show at the Wisconsin State Fair in September, as it has during the last three years. A salesroom-circuit spring show also is planned for the middle of April.

Shipping New Dort Model 11

FLINT, Feb. 9—The Dort Motor Car Co. is shipping the new Model 11 car. There are no radical changes in it, although several refinements in design and minor mechanical improvements have been made. The body design has been proved by changes in the contour of hood and fenders, and there is a cellular type radiator in place of the tube and fin tube formerly in use. Westinghouse starting and lighting, Carter carbureter, Jacox steering gear, cantilever springs and Connecticut ignition are among the specifications.

Cleveland Office for Girl

WASHINGTON, D. C., Feb. 8—The Motor Transport Section of the Quartermaster Corps, of which Christian Girl is chairman, opened an office in Cleveland at 621 Hippodrome Building. The office is in charge of Capt. A. A. Gould, formerly in the designing department of the Peerless Motor Car Co., and will be used to further inspection and production of the class B, class A and class AA Quartermaster war trucks which are being constructed, and will be constructed in greater quantities in the future in the states close to Cleveland.

1727 Jordan Cars in 1917

CLEVELAND, Feb. 11—The Jordan Motor Car Co. manufactured and shipped 1727 cars during 1917, the total volume of business amounting to \$3,000,000. More cars were sold in the last three months than any other quarter of the year.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

A. E. Vinton has been made advertising manager of the National Motor Car & Vehicle Corp., Indianapolis. For more than 8 years, Vinton has been in the sales department, where he was in charge of export trade.

Earl W. McGookin, manufacturers' representative, has discontinued all service and installation on the various lines he represents, and has moved to 820 Book Bldg., Detroit, where he will continue to represent all lines with the exception of the Hayes Wire Wheel.

Robert Walsh, former advertising manager of the Maxwell Motor Co., Inc., Detroit, has joined the Fred M. Randall Co., advertising agents.

A. C. Faeh, who resigned as advertising manager of the Baker R. & L. Co., Cleveland, to become sales and advertising manager of the Osgood Lens & Supply Co. of Chicago, has returned to his former position.

C. W. Owston, formerly purchasing agent of the McCord Mfg. Co., Detroit, has resigned and has been appointed a captain in the Ordnance Reserve Corps in charge of the Detroit district production office for the carriage section. Capt. Owston has been succeeded by E. C. Grant.

C. E. Ploch has been appointed chief engineer of the Fruehauf Trailer Co., Detroit, where he will develop special bodies for trailers. Ploch was formerly connected with the Packard Motor Car Co.

H. F. Harris has been made industrial engineer of the Republic Motor Truck Co., Alma, Mich. He was formerly assistant branch manager and comptroller of the New York branch of the Willys-Overland Co.

A. W. Russell, president of the Russell Motor Axle Co., is devoting his time to the service of the war department at Washington, as an assistant of the assistant secretary of war.

C. E. MacConnell has been added to the staff of sales engineers of the Hyatt Roller Bearing Co., Detroit. He was formerly advertising manager of the Detroit branch of the Goodrich Rubber Co.

Frank C. Kip, formerly sales promotion manager of the Packard Motor Car Co., has returned to his previous position as sales manager of the Motor List Co., Des Moines. He will make his headquarters in Detroit.

H. W. Biddle and C. L. Ughetti have become associated with the sales department of the Silve Co., South Bethlehem, Pa. Biddle was formerly supervisor of sales with the Champion Spark Plug Co., and Ughetti in charge of the Indiana and Michigan territories for the same concern.

R. W. Lea, trade manager for the Moline (Ill.) Plow & Tractor Co., and also chairman of the executive board of that organization, has been ordered to report at once to the Jeffersonville, Ark., army depot to take charge of army wagon production there. He has been commissioned major.

M. D. Davidson has been appointed sales manager of the truck division of the Lau Iron Works Co., Youngstown, O., which manufactures the Elton truck unit for Cadillac cars, and now is about to start manufacture of a truck unit for Fords.

John H. W. Mackie has been made assistant sales manager of the Saxon Motor Co., Kansas City. He formerly was Chal-

mers distributor in Iowa, and has recently managed the Chalmers end of the Harry Newmann Stratton Co., Chicago.

Richard Bacon, formerly president of the Chalmers Motor Co. of Minnesota, has been appointed special representative of the Liberty Motor Co., Kansas City.

Maxwell Truck Averages 10.56 m.p.g.

NEW YORK, Feb. 11—The Maxwell truck which left New York, December 1, on an endurance and demonstration run, has reached its destination at Washington after covering 2,488 miles by way of Philadelphia, Washington, Richmond, Atlanta, to Jacksonville, Fla., and return through Savannah, Augusta, Columbia, S. C., Raleigh and Richmond. The run was made entirely under the supervision of the American Automobile Association, James A. Hemstreet being official observer, and the official sanction being No. 1080. The average gasoline consumption was 10.56 miles to the gal., though in places this was as high as 15.1 m.p.g. The average consumption of oil was 2.0497 qts. per 100 miles and of water 1.334 pts. per 100 miles. During the entire run, the weather was unfavorable, the temperature ranging from 30 deg. above to 12 below zero Fahr. The total load transported was 2,039 lbs. and during the run no adjustments except minor ones on carbureter and gasoline feed line were made. One coil radiator spring and one fan belt were replaced. The vehicle was a stock Maxwell, 1-ton truck.

Motor Securities

	Bid	Asked
*Ajax Rubber Co.....	51	53
*J. I. Case T. M. Co., pfd.....	80	90
Chalmers Motor Co., com.....	4	5
Chalmers Motor Co., pfd.....	25	40
*Chandler Motor Co.....	82½	84
Chevrolet Motor Co.....	118	120
*Fisher Body Corp., com.....	26	35
*Fisher Body Corp., pfd.....	75	85
Fisk Rubber Co., com.....	50	54
Fisk Rubber Co., 1st pfd.....	98	103
Fisk Rubber Co., 2nd pfd.....	60	70
Firestone Tire & Rub. Co., com.	96	98½
Firestone Tire & Rub. Co., pfd..	95½	97½
*General Motors Co., com.....	138	139½
*General Motors Co., pfd.....	83	85
*B. F. Goodrich Co., com.....	47	48½
*B. F. Goodrich Co., pfd.....	97	100
Goodyear Tire & Rub. Co., com.	142	145
Goodyear Tire & Rub. Co., pfd..	99	101
Grant Motor Car Corp.....	2	3
Hupp Motor Car Corp., com.....	2½	3
Hupp Motor Car Corp., pfd.....	75	80
International Motor Co., com.....	14	17
International Motor Co., 1st pfd.	40	45
International Motor Co., 2nd pfd.	17	20
*Kelly-Springfield Tire Co., com.	46	47½
*Kelly-Springfield Tire Co., 1st pfd.	77	85
*Lee Rubber & Tire Corp.....	13	14
*Maxwell Motor Co., Inc., com.	29	30¾
*Maxwell Motor Co., Inc., 1st pfd.	62	65¾
*Maxwell Motor Co., Inc., 2d pfd.	24	25
Miller Rubber Co., com.....	140	160
Miller Rubber Co., pfd.....	95	97
Packard Motor Car Co., com.....	105	115
Packard Motor Car Co., pfd.....	91	94
Paige-Detroit Motor Car Co.....	18	19
Peerless Truck & Motor Corp.....	19½	20
Portage Rubber Co., com.....	109	115
Regal Motor Car Co., pfd.....	25	25
*Reo Motor Car Co.....	17	18
*Saxon Motor Car Corp.....	9	10½
Springfield Body Corp., com.....	..	..
Springfield Body Corp., pfd.....	..	..
Standard Motor Construction Co.	9½	10½
Standard Parts Company.....	69½	70
*Stewart-Warner Speed Corp.....	50½	52½
*Stuebaker Corp., com.....	50	51
*Stuebaker Corp., pfd.....	93	97
Swinehart Tire & Rubber Co.....	35	39
United Motors Corp.....	25¾	25¾
*U. S. Rubber Co., com.....	56½	57½
*U. S. Rubber Co., pfd.....	99	101
*White Motor Co.....	41	43
Willys-Overland Co., com.....	18	18¾
*Willys-Overland Co., pfd.....	78	78

*At close Feb. 9, 1918. Listed N. Y. Stock Exchange. †Par \$10 per share.

Kansas City Shows How to Run a Show

Nearly 500 Dealers See Demonstration of Right and Wrong Methods—Show Opens

KANSAS CITY, Feb. 10—The Kansas City dealers have done a truly big thing in merchandising. It is something that every dealers' association should copy. Last night, a meeting was held of between 400 and 500 dealers at which was demonstrated the right and wrong way of running a motor car show exhibit. The object of the meeting was to increase the value that the dealers and salesmen get out of the money and effort they are putting into the show, which opens Monday.

As a starter, Ray W. Sherman, editor of Motor World, told how exhibits are operated in many shows, and pointed out defects and possibilities of improvement. Specific matters of personal conduct were taken up, and the salesmen and dealers were told how little things often make or lose sales. Afterwards, questions on various points were asked by the salesmen.

The second half of the meeting was a demonstration of how and how not to do it. Across one end of the salesroom of the H. A. Dougherty Motor Co., where the meeting was held, were curtains which were drawn at the proper time. The audience could then see exhibits, the exact size of those at the show. One of these was crowded with three cars, so that there was no room to see them. Coats were piled in the cars. A drunk was asleep in a sedan. A colored porter wore greasy overalls. Catalogs lay scattered on the hoods of the cars and on the floor, and H. D. Ellenwood, of the Butler Motor Car Co., acted the part of the old-style salesman with a cigar in his mouth, a hat on his head and nothing inside.

Next was shown an exhibit with two cars, plenty of room, a rug on the floor, a neat literature table, a desk, a uniformed porter, and general, all-around efficiency. L. E. Eccleston took the part of a modern salesman who years no hat, and acts with real intelligence. The demonstration was popular, and proved very popular with the salesmen.

Plans are being considered for the formation of an automobile salesmanship club. This suggestion was made by one of the salesmen in the after-discussion, and aroused immediate enthusiasm. The necessity for real action on the ideas developed at the meeting was pointed out in a talk by E. E. Peake, show manager and association secretary.

Both the tractor and the car and truck shows open at 10 o'clock Monday morning. The buildings are prettily decorated, and everything is moving to-day according to schedule. At Convention Hall, 57 cars were elevated to the balcony in 60 minutes and things were running about half an hour ahead of schedule.

Trucks Feature Harrisburg Show

Business Men Are Buying Trucks and Dealers Are Looking for Agencies—Tractors, Too, in Demand

HARRISBURG, PA., Feb. 9—The weather and war conditions tried to put a spoke in the wheel of the eighth annual Harrisburg Automobile Show, but after a week of zero weather, impassable country roads, two feet of snow in the city streets and practically abandoned train schedules, the exhibitors are all smiles and are ready for a season of great possibilities.

The weather, of course, played a big part in cutting down the show attendance, which did not come up to more than 50 per cent of that of former years, but it also served to bring to the show a class of real live prospects who were interested enough to brave snow and cold.

The Harrisburg show is held by the Harrisburg Motor Dealers' Association, Inc., which includes every dealer in passenger cars in the city, 90 per cent of the truck dealers and most of the accessory and tire firms. Twenty-six car dealers and eight accessory firms were represented at the show, and they displayed thirty-five makes of passenger cars and fourteen makes of trucks, while the accessory and tire men ran the gamut of the accessory and tire field.

The same space as in former years, 20,000 sq. ft., was given to the display and the passenger car and truck displays were combined in each booth. The two big floors of the Emerson-Brantingham building were decorated with American flags, rope laurel and potted plants. The designating signs for booths were finished in national colors and were surmounted with a trio of flags, American, English and French.

The 1918 show was held at the earliest date of any of the eight Harrisburg displays. It was a test for an early show, sponsored by some of the dealers, but now in disfavor by a majority. "It's too early," was the remark heard on every side from the exhibitors.

The Harrisburg dealers cover many counties, and many sub-agents come in, but the show is more of an owners' show than a dealers', and everyone seemed convinced that the early date was not near enough to the peak of buying demand to be as effective as a later date.

From a display standpoint the show was the greatest success of the long succession of such affairs. From a business standpoint it was not. It served, however, to bring a lesson to the dealers, a lesson that will mean hundreds and thousands of dollars saved, if the message of the show is carried out in the future business alignments of these dealers. The passenger car hardly got a look in. That's true, every bit of it.

The truck, both light and heavy, had its day. One exhibitor truthfully re-

marked to the Motor World representative the opinion of a majority of the dealers:

"God pity the little fellow who has nothing but a passenger car to offer this year."

One dealer who has seen the light exhibited a Cleveland tractor, and this tractor and the trucks attracted more attention than all the passenger cars combined. This is not saying that there was no interest in passenger cars. There was, and many were sold, but not in the abundance of other years. Some of the dealers with cheap cars had not recorded a sale on Saturday afternoon, as the tendency seemed to be for the purchase of the intermediate and higher priced cars.

Here's the Airplane Dealer

CHICAGO, Feb. 9—Prophecies in Motor World that motor car dealers would have to handle airplanes after the war if they are to keep up with the times did not anticipate that this should come to pass immediately. Nevertheless, one progressive dealer has arranged to supply his patrons with aircraft as well as roadcraft. Harry Newman, Maxwell and Chalmers distributor in Chicago, has the honor of being the first motor car dealer to handle aircraft on a commercial basis, inasmuch as he is now showing a plane of tractor type, though he does not promise delivery until after the war.

It may be that Newman realizes the publicity value of having the plane on his floor, and expects more immediate advantage from the numbers of people that are crowding the salesroom to see a modern plane at close range than any immediate prospect of actual sales of planes. Nevertheless, it is to be anticipated that Newman's salesroom will not be the last motor car distribution point to carry planes as a part of the line.

The Harrisburg territory is surrounded by a prosperous farming country, and the chief industries are large steel mills and manufacturing plants, busy at full time on war orders. Employees are making more money than ever before—incomes are greater and the money to purchase cars is plentiful, but the spirit of war unrest is causing a hesitancy on the part of many.

The dealers believe that they will have no trouble disposing of their present allotments when the weather opens, but at the same time there was a wild

scramble by all dealers to add a truck line to meet any emergency which might arise. Business men are buying trucks, large and small, and even the farmer is going in for trucks this year.

Business has awakened to the possibilities of the light and heavy truck, and this winter weather has been a demonstration much in its favor. Suburban towns have been cut off from the city, except for auto traffic, which managed to break through the snow when street railway systems and railroads were blocked.

Delivery by horse was impossible in some sections, but trucks and even passenger cars were put to a supreme test, and they made good.

This demonstration of the motor car's possibilities certainly stimulated the sales of commercial cars at the show.

The dealers exhibiting and the cars they represent were: Bentz-Landis Auto Co., Nash, National, Mercer; C. L. Conover, Case; E. L. Cowden, Apperson, Paige; Crispin Motor Car Co., Cadillac; Denby Sales Corp., Denby truck; Driscoll Motor Car Co., Chevrolet; Ensminger Motor Co., Dort; Harrisburg Auto Co., Reo, Duplex Four-Wheel Drive, Cleveland tractor; Hudson Sales Co., Hudson, Saxon, Stewart truck; Hupmobile Sales Corp., Hupmobile, Holmes; P. H. Keboch, Jackson; Keystone Motor Car Co., Peerless, Chalmers, Dodge Bros., G. M. C. truck; Elmer T. Mehring, Briscoe, Redden Truck-maker; Miller Auto Co., Haynes, Oldsmobile, Maxwell, Maxwell truck; Monn Bros., Crow-Elkhart; Martin L. Mumma, Studebaker, Brockway truck; Packard Motor Car Co., Packard, Packard truck; Pen-Mar Auto Co., Premier, Republic truck; A. Redmond, Chandler, Oakland, Vim truck; E. W. Shank, Franklin; C. A. Slough, American; Velie-Harrisburg Co., Velie; H. J. Williams, Ford; Geo. B. Zech, Buick; Eureka Wagon Works, Autocar; Overland-Harrisburg Co., Overland, Willys-Knight, Garford and Bethlehem trucks.

The accessory dealers were: Atlantic Refining Co., Excelsior Auto & Battery Co., Front-Market Motor Supply Co., E. Mather Co., Myers Accessory House, Sterling Auto Tire Co., Zimmerman Auto Repair Co. and Standard Auto Supplies Co.

Lane to Manage Duluth Show

DULUTH, Feb. 9—John J. Lane has been named manager for the annual automobile show of the dealers' association Feb. 18-23. It is to be an automobile, truck and tractor show. New officers of the association are: President, A. H. Davis; vice-president, H. B. Knudson; secretary, L. H. Filiatrault; assistant secretary, Leonard McNamara; treasurer, J. Fuller Stafford.

Columbia to Make Trailers

DETROIT, Feb. 9—The Columbia Motors Co., makers of the Columbia six-passenger cars, has just received a big government order for trailers, with instructions to begin shipments to France as quickly as possible.

Boston Show List Is Rapidly Being Filled

Partial List, Which Will Be
Lengthened, Made Public—
Show Dates Unchanged

BOSTON, Feb. 9—The list of exhibitors for the Boston show, which is to be held as usual in Mechanics Hall during the first week in March, is rapidly filling. Following is a partial list of exhibitors who have signed to date. Others will be added from week to week.

Acason Motor Truck Co. Detroit
Arrow-Grip Mfg. Co. Glens Falls, N. Y.
Atlantic Auto Co. Boston
Anthony, F. P. Brighton, Mass.
Atwater-Kent Mfg. Works. Philadelphia
American Motor Equipment Co. Boston
Auto Pedal Pump Sales Co. Boston
Autocar Sales & Service Co. Boston
Baker Sales Co. Cleveland
Baker Motor Truck Co. Boston
Beacon Motor Car Co. Boston
Becker-Stutz Auto Co. Boston
Bennett & Co., Frank P. Boston
Bigelow & Dowse Co. Boston
Boice Motor Equipment Co. Boston
Boice-Perrine Co. Boston
Brooks-Skinner Co., Inc. Quincy Point, Mass.
Burd Ring Sales Co. Boston
Brunner Mfg. Co. Utica
Bowman Co., J. W. Boston
Brown, Inc., Frank L. Boston
Buick Boston Co. Boston
Baker Motor Sales Co. Boston
Brockway Motor Sales Co. Boston
Boston Federal Truck Co. Cambridge
Butts & Ordway Co. Boston
Cadillac Automobile Co. of Boston. Boston
Caldwell, John Boston
Canterbury, Inc., George W. Boston
Central Automobile Tire Co. Boston
Chalmers Motor Co. of New England. Boston
Century Plainfield Tire Co. Boston
Champion Ignition Co. Flint
Champion Spark Plug Co. Toledo
Chandler Motors of New England. Boston
Charles Motor Co. Boston
Chevrolet Motor Co. of New England. Boston
Chess Journal Co. New York
Connell Co., W. J. Boston
Corning Glass Works. Corning, N. Y.
Cotton, Inc., L. M. Boston
Connell & McKone Co. Boston
Crew-Levick Co. Cambridge, Mass.
Cut Price Auto Supply Co. Boston
Corcoran Victor Co. Cincinnati
Coward Auto Supply Co. Boston
Craig-Wyman Co. Boston
Cochran Pipe Wrench Co. Chicago
Cunningham, Son & Co., James. Boston
Davis-Lynn Storage Battery Co. Lynn
Davis-Watson Mfg. Co. Lynn
Davis Chemical Mfg. Co. Brockton
DeLano Co. Brockton
Detroit Pressed Steel Co. Detroit
Donovan Motor Car Co. Boston
Du Bois Piston Ring Co. Albany
Duton Motor Co., F. A. Boston
Dyer Co., G. H. Cambridge, Mass.
Dixon Crucible Co., Joseph. Jersey City
Eastern Motor Sales Co. Boston
Eastern Oil Tank Co. Lowell
Electric Storage Battery Co. Philadelphia
Fuller, Alvan T. Boston
Flat Motor Sales Co. Boston
Franklin Motor Car Co. Boston
Ford Motor Co. Boston
Fay Co., Charles E. Boston
Flentje, Ernst Cambridge
Foss-Hughes Co. Philadelphia
Franklin, M. Boston
Foster, Charles M. F. Boston
General Motors Truck Co. Boston
General Vehicle Co. Long Island City
Gray & Davis, Inc. Boston
Grant Motor Sales Co. Boston
Groton Electric Devices. Groton, N. Y.
Hawley-Cowan Co. Boston
Hart Co., A. T. Boston
H. & H. Motor Specialties Co. Boston
Harnett-Smith Co. Boston
Hart & Hutchinson Co. New Britain, Conn.
Hartford, Inc., Edward V. Jersey City
Halladay Co., L. P. Streator, Ill.
Hartley, Harry B. Boston
Harriman Co., J. P. Boston
Heinze Electric Co. Lowell, Mass.
Henshaw Motor Co. Boston
Henley-Kimball Co. Boston
Hillman Auto Supply Mfg. Co. Boston
Hill-Smith Metal Goods Co. Boston
Hub Cycle Co. Boston



CHICAGO, Feb. 9—Possibilities of delivering cars by road from factories on the Atlantic coast to points in the Middle West, even in mid-winter, were demonstrated last week by E. W. Schillo, Chicago Mercer dealer, when he completed a trip from the factory at Trenton with the first of his 1918 allotment. He started from the Mercer factories Jan. 15 in one of the standard roadsters, and encountered heavy snow before reaching York, Pa., finishing in Chicago Jan. 23. From York to Pittsburgh, a distance of 322 miles, he passed through a 13-inch

snowfall, which in places was drifted as high as 8 and 10 ft. The worst road conditions were encountered from Chambersburg, Pa., on, where, for distances of 5 and 10 miles, he says he broke roads which had been traveled over only by a horse and sleigh.

Between Pittsburgh, Cleveland, Toledo, Detroit, etc., roads were a succession of ice and snow drifts, and zero weather was encountered the better part of the way. Where the drifts were too deep it was necessary to resort to interurban tracks to get around them.

Howe Rubber Co. Boston
Hudford Truck Co. Boston
Hinchcliff Motor Co. Boston
Harris Oil Co., A. W. Providence
Indiana Truck Corp. Marion, Ind.
International Harvester Co. Somerville, Mass.
Jackson, Inc., Chas. A. Boston
Jackson Motor Car Co. Boston
Judd, John L. Boston
Justice Co., A. R. Philadelphia
Kelly-Springfield Motor Truck Co. Boston
Kellogg Mfg. Co. Rochester
King Motors, Inc. Boston
Lawrence & Co. Boston
Longford Co. of America. Cambridge
Linscott Supply Co. Boston
Linscott Motor Co. Boston
Locomobile Co. of America. Boston
MacAlman, J. H. Boston
MacBride & Co., Geo. W. Boston
Mack Motor Truck Co. Cambridge
Maddocks Co., H. Ross. Boston
Maguire Co., J. W. Boston
Mann Co., F. W. Milford, Mass.
Malton Specialty Co. Boston
McQuay-Norris Mfg. Co. St. Louis
Morse & Co., Alfred Cutler. Boston
McIntyre Co., J. D. Cambridge
Maxim Motor Co. Middleboro, Mass.
Morey Specialty Co. Boston
Motor Car Equipment Co. Boston
Moto-Meter Co. Long Island City, N. Y.
Middlesex Motor Car Co. Boston
Miller, Chas. E. New York
Mosler & Co., A. R. Mt. Vernon, N. Y.
Metal Stamping Co. Long Island City, N. Y.
Menominee Motor Truck Co. Boston
Moreton, Walter K. Boston
Mitchell-Lewis Motor Co. Boston
Montello, A. V. Medford, Mass.
Michigan Hearse and Motor Co. Grand Rapids, Mich.
New York Lubricating Oil Co. Boston
New England Velie Co. Boston
New England Truck Co. Fitchburg, Mass.
Nutter Electric Equipment Co. Boston
Oakland Motor Co. Boston
Oldsmobile Co. of New England. Boston
O'Lalor Auto Co. Boston
Owen Magnetic Car Co. Boston
Olympian Motor Car Co. Boston
Optimus Mfg. Co., Inc. Boston
Paige-Detroit Co. of New England. Boston

Pettingell-Andrews Co. Boston
Piel Co., The G. Long Island City, N. Y.
Platt & Washburn Refining Co. New York
Preston Cloth Mfg. Co. Toledo
Pressure Proof Piston Ring Co. Boston
Rand, H. L. Worcester, Mass.
Rand Mfg. Co., Inc. Haverhill, Mass.
Ransom, Inc., C. S. Boston
Republic Truck Co. of Boston. Boston
Rockwell, Inc., C. P. Boston
Roedding Signal Trail Light Co. Detroit
Robinson & Son, William C. Boston
Rowe-Calk Co. Hartford
Russell Co., W. L. Boston
Salmon, John A. Boston
Scripps Booth Motor Car Co. Brighton
Schrader's Son, Inc., A. Brooklyn, N. Y.
Saunders, Dunbar & Bowen, Inc. Boston
Stone, Marshall. South Boston
Springfield Commercial Body Co. Springfield
Smith Co., Fred S. Boston
Stimpson, E. Y. Boston
Standard Steel Motor Car Co. Boston
Sanford Motor Truck Co. Syracuse
Sewell Cushion Wheel Co. Boston
Signal Motor Truck Co. of New England. Boston
Syracuse Malleable Iron Works Syracuse, N. Y.
Stegeman "Six" Truck Co. of New England. Boston
Silvex Co., The. South Bethlehem, Pa.
Sterns Tire & Tube Co., Inc. New York
Saferlite Lens Co. New York
Texas Co., The. Boston
Utterback-Gleason Co. Boston
United States Air Compressor Co. Cleveland
United States Rubber Co. Boston
Underhay Oil Co. Boston
Vacuum Oil Co. New York
Veeder Mfg. Co. Hartford, Conn.
Warnola Mfg. Co. New York City
Wakefield Tire Co. Wakefield, Mass.
Warner-Lenz Co. Chicago
White Co. Boston
Wing, F. E. Boston
Winton Co. Boston
Westinghouse Air Spring Co. Boston
Webber Mfg. Co. Boston
Weaver Mfg. Co. Springfield, Ill.
Wilson Co., John V. Boston
Wright "Name-On" Robe Co. Waterville, Me.
West Side Foundry Co. Troy, N. Y.
Young Co., E. C. Randolph, Mass.

Coal Gas Banned for Use With Motor Cars

England Decides to Still Further Restrict Use of Cars—May Utilize Benzol

LONDON, Jan. 9—By a new order issued to-day, the use of gas for motor cars and motor trucks has been limited to those cases where it is legal to use gasoline as a motor fuel. This ruling represents another curtailment on the industry. It was thought that the use of coal gas would be permitted in that it allowed the conservation of gasoline, but the government has apparently decided to restrict the use of automobiles, no matter what fuel is used.

On Feb. 9 a still further curtailment order is expected to go in force in that on that date a motorist must decide whether he will use coal gas or gasoline as a fuel. In other words, after Feb. 9, if a permit allows gasoline, then a motorist cannot use coal gas and vice versa.

This new ruling brings to the surface a possible development in automobile fuels which will continue after the termination of the war. There are some sections of the country in which the use of gasoline may cease entirely, particularly in sections where gas is plentiful, that is, those districts where bituminous coal is mined in great quantities.

In such sections the voluminous gas bag will undoubtedly disappear and the steel cylinder will take its place. With the use of steel cylinders and compressors, coal gas will be more easily carried than gasoline, and in such sections coal gas may supersede gasoline as a fuel. It is not likely that the gas bag will disappear during the period of the war, due to the difficulty of securing steel cylinders.

There is still another aspect to the fuel situation in England, following the war, namely, the possibility of using benzol. There will be gigantic supplies of benzol when the war is over, because the huge plants which have been put up to produce this satisfactory fuel are at present on war work only, but when the war is over benzol will be produced in great quantities, and it should sell at a lower price than gasoline.

Lurie Takes Up Ford Sales

NEW YORK, Feb. 9—The Hollander Sales Co., one of the large Ford agents in the Metropolitan territory, is to be taken over by a new company under a slightly changed name and representing the entry of new interests. John Lurie, who 18 years ago founded The Auto Supply Co., jobber and dealer in accessories, and who is treasurer and owner of the company at present, together with Benjamin Eichberg and E. R. Hollander, for whom the company is named, form the new company. Both Lurie and Eichberg, the latter being one of the city's biggest diamond merchants, are well known to the trade. Both have been

previously connected with Fiat, Poughkeepsie. Hollander will be president of the new company and Lurie treasurer. The officers and Eichberg constitute the board of directors.

Haynes Prices Increased

KOKOMO, IND., Feb. 9—Factory prices of Haynes models have been increased as follows:

Model	New Price	Old Price
5-pass. touring	\$1,725	\$1,595
7-pass. touring	1,825	1,725

The prices of all touring models will be raised an additional \$125 on March 1. Cars leaving the factory before that date will be charged for at the present rate, but after March 1 each touring car shipped, even if ordered in advance, will cost \$125 extra. The Haynes Automobile Co. has put out a new model four-passenger coupe, costing \$2,535.

Chandler Earns 34 Per Cent in 1917

CLEVELAND, Feb. 11—The Chandler Motor Car Co. manufactured 15,000 cars in 1917, and shows net earnings, before deduction of Federal taxes, of about 34 per cent on the \$7,000,000 outstanding stock. War taxes amounted to \$7 or \$8 a share, and after allowing for these the company earned its \$12 dividend rate more than twice over.

Bland Electric Garage Reorganized

CHICAGO, Feb. 9—The Bland Electric Garage has been reorganized. A new company styled Bland Electric Garage Co. has been formed and has taken over the entire business. Robert Bland remains proprietor and the business will be conducted as heretofore.

South Looks For Its Greatest Sales Year

Sales Already Big and Growing—Crop Prices High and Prosperity Spreading

SAVANNAH, GA., Feb. 9—Southern dealers are now assuring themselves that 1918 will be the greatest year ever for them.

After a rather gloomy outlook in the beginning, things are now commencing to look much brighter and sales records from dealers in cars in the representative cities of the South show that this year will be good.

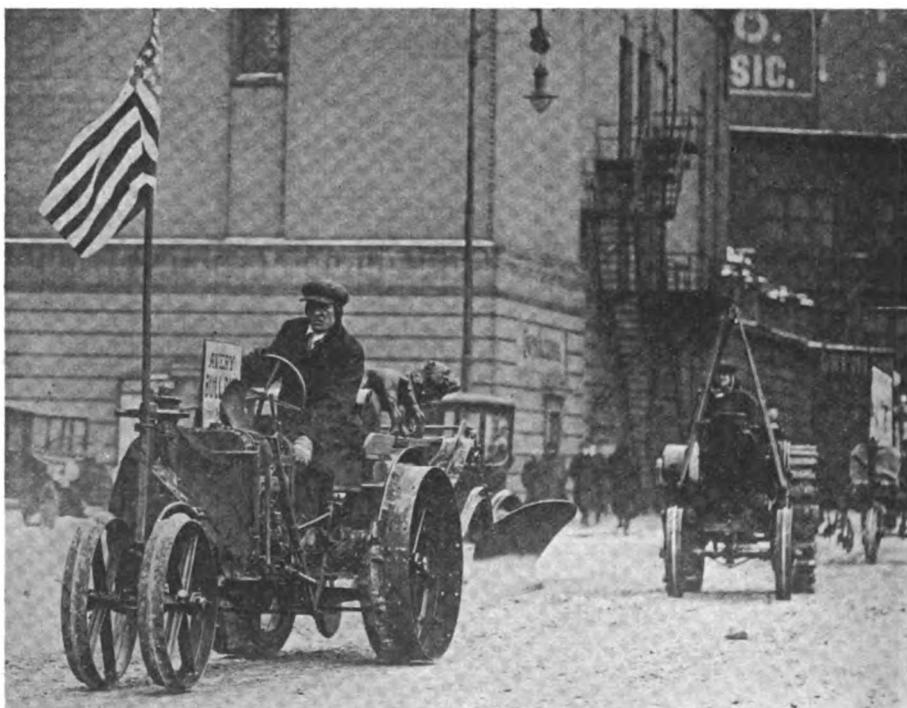
In the beginning there was much "if-ing" in regard to the coming year, but now in spite of the decreased production and the poor transportation facilities things seem bright indeed for the dealers.

In Savannah all dealers are reporting good sales. One dealer reports gross receipts of over \$50,000 for the past month. This is representative of the big business being done by all dealers.

Joe B. Johnson, Buick dealer in Tampa, reports the sale of twenty-seven cars during the past week, and he is optimistic over the outlook.

The West Coast Auto Co., Tampa, reports the sale of thirty-seven Chevrolets since this company took over the agency three weeks ago.

John T. Kemp, of the Birmingham (Ala.) Motors Co., Federal truck distributor, reports big business, and says this is destined to be the largest year in the history of trucks.



"SEND you herewith," says J. E. Smith, MOTOR WORLD representative, "a photograph of the first tractor parade of the kind ever held, preceding the Twin City automobile, tractor, truck and industrial exposition, Feb. 2-9. Parade was in both cities, and watched by large crowds, notwithstanding low temperatures. Girl drum corps in carnival suits, bands and mounted police were features. The parades advertised the show well."

Montreal's 1918 Show a Success in Every Way

Sales, Attendance and Enthusiasm Exceed All Former Exhibitions
—More Cars Used in Winter

MONTREAL, Feb. 9—The Montreal show, the fifth held under the auspices of the Montreal Automobile Trade Association, stands out most prominently as the most successful yet held as viewed from every angle.

The attendance shows a very large gain over 1917 and sales have been up to expectations. Great credit is due President W. Jennings and Manager T. C. Kirby and the directors of the association for having the courage to stage a show during war time.

"This is not the time to be apathetic or pessimistic. We must not only continue business but we must conduct unusual business. It would have been suicidal and fatal to have relaxed any of our activities at this particular time, as this would have at once been considered an admission of weakness," said Manager T. C. Kirby. "Consequently we went ahead. Every inch of our 46,000 sq. ft. at our disposal was disposed of long before the show opened and had the association had more space at their disposal it would have been a very easy matter to have disposed of it at an even higher figure than was obtained for the previous allotments."

The show included sixty-two exhibitors showing in all nearly 100 models and about 12 different types of motor trucks and some 245 exhibits of accessories, the whole taxing the building to capacity. The majority of dealers interviewed stated that an unusually high percentage of those present this year were buyers as against sightseers.

Some exhibitors stated that a number of their prospects were holding off on account of being afraid that the Government would restrict the use of gasoline, while others claimed that conscription going into force had been the means of cancelling a large number of orders and prospective sales.

Montreal as an automobile center is situated differently from most cities on account of the winter season, but automobiles are more generally used this winter than a year ago, but few have any definite conception of the extent of this increased use.

An idea may be gained when it is known that there have been five times as many radiator and engine robes sold as during the previous year. One of the largest makers of these robes report that although they contracted for three times the amount of raw materials for their manufacture as used during the preceding twelve months this entire amount had been used by Nov. 1. Since that time they have been constantly searching the country over for additional supplies for which they have been obliged to pay a great advance in cost and often have been obliged to have large shipments made by express, which also add to their manufacturing costs.

This not only shows to what extent the winter use of motor cars has increased, but likewise the awakened appreciation on the part of car owners to the importance of protecting their engines from the severe strains caused by sudden changes in temperature, as well as avoiding breakages and repair expense on account of frost and securing more constant, more certain and more satisfactory use of their cars during the cold period.

Automobile registrations in the Province of Quebec for 1917 were considerably greater than had been anticipated. The highest estimate had been 21,702. Though the official report has not been made, the total will reach to between 22,000 and 23,000. This is an increase of 6355 over 1916, or 41 per cent. The same rate of increase has been maintained for some years.

McMullen to Locate on Pacific Coast

DETROIT, Feb. 9—George C. McMullen, assistant plant manager of the Metal Products plant of the Timken-Detroit Axle Co., has been obliged to leave Detroit owing to the very poor health of Mrs. McMullen. He will locate in or near Los Angeles, and will represent the Timken-Detroit Axle Co. and the Timken Roller Bearing Co. on the coast. The Detroit plant with which McMullen has been associated for the past two years has given him an indefinite leave of absence. Previous to the above-mentioned connection he was with the Crane Motor Car Co. of Bayonne, N. J., for five years.



Directors of the Montreal Automobile Trade Association—Front Row—T. C. Kirby, Manager; Alderman Dubeau, representing City of Montreal; W. Jennings, President; Peter Bercovitch, K. C. M. L. A.; J. E. Doane, Director; J. O. Linteau, Secretary; J. D. Chesney, Managing Director of Almys, Ltd. Second Row—R. F. Girdwood, Vice-President; Capt. Lyons; N. J. E. Catudal, Treasurer; G. Munro, Superintendent Almys, Ltd.; W. P. Kearney, Past President; J. E. Millen, Director; U. H. Dandurand, J. R. Marlow, Director



The Tractor Section which proved the main point of interest in the Pennsylvania Farm Products Show at Harrisburg

See Rapid Development in Farm Motorization

Dealers at Pennsylvania Products Show Sell 80 Tractors—Light Models the Most Popular

HARRISBURG, PA., Feb. 9—Eighty-odd farm tractors and several dozen motor trucks were sold to Pennsylvania farmers at the annual State Farm Products Show which was held at Harrisburg recently.

The show proved an eye opener not only for the agricultural officials of the state, but every tractor and automobile tradesman who was fortunate enough to secure some space among the displays of Pennsylvania's prize corn, fruit, vegetables and wool was given a great surprise by the alacrity with which farmers are motorizing their farms.

Farmers from all sections of the state attended the show in large numbers and ten makes of farm tractors, including sixteen different types of machines, were shown. It was the first big tractor display ever held in Pennsylvania and it proved to be just the thing the farmers were waiting for. The tractors were the main point of interest in the show and one agent, fortunate enough to have six models on hand, sold all but his demonstrator, received the cash, and the new owner saw the tractor loaded on a freight car for shipment to his home before he left the city.

Pennsylvania farmers are looking for the small type of light tractor, easy to operate, with all working parts enclosed and running in oil. These tractors met with ready sale and from the ten different makes the prospect had plenty of chance to make his selection and a quick decision, for quick decision is the one thing that is going to get the tractors through for use by the farmer this

spring. Indications are that there will be a great demand in Pennsylvania.

A year ago it was estimated by Pennsylvania Department of Agriculture statisticians that there were about 1100 tractors in the state. At the state show eighty-odd machines were sold, hundreds of prospects were secured and many branch agencies were established in various sections of the state. One manufacturer of tractor gang plows reported the sale of 105 plows for tractors, 75 two-bottom and 35 three-bottom.

In addition to the tractors there were displays of several motor trucks and these, too, found ready sales among the farmers. The show opened on a Monday night and on Tuesday morning one truck salesman said: "This beats automobile shows all hollow. Why, last night two farmers whom I had never heard of before came to me and closed for the purchase of trucks within 20 minutes."

There was 2 ft. of snow on the streets during the week and one of the features was a demonstration by the tractor salesmen showing how the tractors would turn and shoot through snow drifts.

The tractors shown were: Case, International, Moline, Cleveland, LaCrosse, Huber, Frick, Avery, Emerson-Brantingham and the Knickerbocker.

Ohio Automobile Association Distributing Emblems

THE Ohio Automobile Trade Association is distributing to members small electrotypes for use in printing letterheads and advertising. The aim of the association, under its plan of reorganization, is to make the association stand for something, and the plan is that

membership in the organization will be such that the emblem printed on a letterhead, window or advertisement will indicate to the prospective customer that the dealer is reliable.



Lansing Companies Unite to Clear Roads of Snow

Reo, Olds and Auto Body Form Snow Shoveling Brigade to Make an Outlet to Detroit

LANSING, Feb. 9—The Olds Motor Works, the Reo Motor Car Co., and the Auto Body Co. have joined hands, at least temporarily, for the purpose of being able to ship part of their output and have formed what might be called a snow-shoveling brigade. More than 100 men are now occupied in clearing the roads from Lansing to Detroit, so that cars can be shipped overland to Detroit, and then connect with the military motor truck road from Detroit to Cleveland and Toledo.

Shipping conditions during the last 10 days have become so acute that these concerns had to lease warehouse space as their plants were being filled with finished cars which could not be shipped except in such small quantities that some action had to be taken to overcome unusual conditions. A few days ago the Reo Motor Car Co. leased part of the Owosso Sugar Co. plant to store 200 trucks and cars. At the Olds Motor Works it was stated that it is not possible to get freight cars and owing to the bad weather passenger cars can hardly be moved by the usual drive-away plan. The Auto Body Co., which is furnishing bodies to the Scripps-Booth Co., is also practically unable to make any shipments. It is for these reasons that these three companies have combined and will try to clear the main roadway to Detroit.

Metz May Sell Plant

WALTHAM, MASS., Feb. 9—The Metz Co. is planning to sell its plant to liquidate its debts. It will retain one part of the group of buildings in which it will carry on government work. The matter has been under consideration for some time, and a decision was reached a few days ago. The company has some 40 acres of valuable land and a lot of machinery which should bring good prices now with the demand for these things due to war work in New England.

Record Mason Tire Sales

KENT, OHIO, Feb. 9—Sales of the Mason Tire & Rubber Co. for the first quarter of the 1918 fiscal year show an increase of 700 per cent over the same quarter of 1917. January sales were the largest in the history of the company for any one month.

Scripps Schedules 12,000 Production

DETROIT, Feb. 9—The Scripps Booth Corp. has 12,000 cars scheduled for the coming year and will have the new six in production in February. At present only show cars of this model are being made.

**Revisions Are
Made in Table
Every Week**

Model	Motor	B. & P.	Lignition	Carburetor	Starting	Clutch	Gears	Shafts	Tires	Rims	3-Transmission	5-Transmission	7-Transmission	Coupe	Body	Limousine	Deluxable
ABBOTT	6-3125	20.4	Remy	Stmberg	Remy	DD	3	128	24x4 SS		1265	1265	2160	2160
ALLEN	4-3125	22.5	Conn	Stmberg	A-Lite	D	3	112	32x4 SS		11065	1065	1265
Series 41	6-3125	29.4	G & D	Zenith	G & D	D	3	122	32x4 SS		1875
AMERICAN	6-3125	25.3	Conn	Zenith	Wells	DP	3	120	32x4 SS		21465	2165
ANDERSON	6-3125	29.4	Conn	Zenith	Wells	DP	3	120	32x4 SS		21465
DeLuxe	6-3125	29.4	Conn	Zenith	Wells	DP	3	120	32x4 SS		21465
APPERSON	6-3125	29.4	Remy	Radd	Bljor	DP	3	120	32x4 SS		2200	2200
6-18	8-3125	22.5	Remy	Johnson	Bljor	DP	3	120	32x4 SS		2450	2450
6-18	8-3125	22.5	Remy	Johnson	Bljor	DP	3	120	32x4 SS		2450	2450
AUBURN	6-3125	25.3	Remy	Radd	Remy	DP	3	120	32x4 SS		1245	1245
6-20-B	6-3125	25.3	Remy	Radd	Remy	DP	3	120	32x4 SS		1245	1245
6-20-B	6-3125	25.3	Remy	Radd	Remy	DP	3	120	32x4 SS		1245	1245
6-20-B	6-3125	25.3	Remy	Radd	Remy	DP	3	120	32x4 SS		1245	1245
AUSTIN	12-3125	39.6	Delco	Stmberg	Delco	D	6	142	34x4 QD		3750	3750	4000	4550	5000	5350
BY-King	12-3125	39.6	Delco	Stmberg	Delco	D	6	142	34x4 QD		3750	3750	4000	4550	5000	5350
BIDDLE	4-3125	22.5	E'mann	Zenith	G & D	DP	4	121	32x4 QD		2600	12650	4100	4000
BUR-DAVIS	6-3125	29.4	West	Stmberg	West	DP	3	118	32x4 QD	
185	4-3125	22.5	West	Radd	West	DP	3	118	32x4 QD	
BREWSTER	4-4	25.4	25.6	Bench	Zenith	U.S.L.	C	3	125	24x4 SS		7200	8400	8600
BREWSTER	4-4	25.4	25.6	Bench	Zenith	U.S.L.	C	3	125	24x4 SS		7200	8400	8600
BRISCOE	4-3125	16.3	Conn	Buick	A-Lite	C	3	104	20x4 C		725	725
BUICK	4-3125	18.2	Delco	Marrel	Delco	C	3	104	21x4 C		725	725
E 4-34-35	4-3125	27.3	Delco	Marrel	Delco	DP	3	112	32x4 SS		1265	1265
E 4-4-45	4-3125	27.3	Delco	Marrel	Delco	DP	3	112	32x4 SS		1265	1265
E 4-4-45	4-3125	27.3	Delco	Marrel	Delco	DP	3	112	32x4 SS		1265	1265
E 4-4-45	4-3125	27.3	Delco	Marrel	Delco	DP	3	112	32x4 SS		1265	1265
CALLAG	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
67	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
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67	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
CALIFORNIA	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
67	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
CALIFORNIA	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
67	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
CALIFORNIA	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
67	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805	2805	3650	4145
CALIFORNIA	8-3125	31.3	Delco	Own	Delco	D	3	122	32x5 SS		2805					

Model	Motor	S. A. P.	Ignition	Carburetor	Starting	Clutch	Governor	Wheelbase	Tires	Rims	3-Paraspar	5-Paraspar	7-Paraspar	Coupe	Sedan	Limousine	Deluxable Top
MALIBOIM																	
A	4-31x4 15.6 A.Kent		Zenith	Disco	DD	3	105	30x3 1/2 C			795	975	975*	1095			895
B	6-31x4 23.4 A.Kent		Stemg	Wagner P	P	3	115	32x3 1/2 SS			975	975	975	1375			
MARMON																	
34	6-31x4 33.7 Bosch		Stemg	Bijur	C	3	136	32x4 1/2 QD			13550	3500	3550		5180	5350	
MAXWELL																	
25	4-31x4 21 A.Kent		K D	Simms	C	3	109	30x3 1/2 C			3745	745		1095	1095	1095	885
MACFARLAN																	
25	6-41x6 48.6 Mag'co		Stemg	Wells	DP	3	136	35x5 QD			3500	3500		4800	4850		
MERCER																	
22-73	4-31x4 22.5 Bosch		Zenith	U.S.L.	DD	4	132	34x4 1/2 QD			13500	2500					
23-73	4-31x4 22.5 Bosch		Zenith	U.S.L.	DD	4	115	32x4 QD			3400	Flower boat	3250				
MEYER																	
25	4-31x4 24 A.Kent		A.W.T.	Wells	P	108	32x3 1/2 SS				895	895					
MITCHELL																	
D-40	6-31x5 25.3 Conn		Rafid	Spliff	C	3	120	32x4 SS			1950	1950		1850	1950		3002
C-42	6-31x5 29.4 Conn		Stemg	Wells	C	3	127	34x4 SS			11490	1510	1525	2135	2275	2550	3052
MOLINE-KNIGHT																	
C	4-31x5 22.5 Conn		Schebler A-Lite	C	3	118	34x4 SS				11650	1650			2280		
MONITOR																	
C-R	4-31x4 22.5 Conn		Schebler Dyneto	D	3	110	32x3 1/2 SS				995	995					
MONROE																	
M-3	6-31x4 35.3 Conn		Stemg	Dyneto D	3	117	33x4 SS				1195	1195					
M-4	4-3 x4 14.4 Conn		Zenith	A-Lite	DD	3	96	30x3 QD			565	1335			995		
MOON																	
8-36	4-31x4 16.9 Conn		Zenith	A-Lite	DD	3	115	32x4 QD				995			1850		
6-48	6-31x4 19.8 Delco		Thun	Wagner	DP	3	114	32x3 1/2 SS			1195						
6-66	6-31x4 25.3 Delco		Rafid	Delco	DD	3	125	34x4 SS			11685		1685				
MOORE																	
30-E	6-31x4 29.4 Delco		Rafid	Delco	DD	3	125	35x4 1/2 SS			11850		1850	2650	2650		
MURRAY																	
NASH																	
671	4-31x4 22.5 Spliff		Schebler Dyneto	D	3	106	30x3 1/2				995						
681-683																	
NATIONAL																	
Six	6-31x5 33.8 Dixie		Zenith	Wells	DP	3	128	34x4			2800	2800	3600		4008		
Twelve	6-31x4 20.4 Delco		Rafid	Bijur	DP	3	125	34x4 SS			1445						
NELSON	12-31x4 30.6 Delco		Rafid	Bijur	C	3	128	34x4 1/2 QDR			11995	11995	1995	2645	2620		
											12695	12695	2695	3245	3420		
OAKLAND																	
4-31x4 15.6 Bosch			Zenith	U.S.L.	D	3	104	32x4 SS			1200	11400					
4-31x4 19.0 Remy			Marrel Remy	C	3	112	32x4 SS				990	990		1150	1190		
4-31x4 26.4 Delco			B & Ball Delco	C	3	120	34x4 SS						1460				
6-31x4 18.9 Remy			Johnson Remy	C	3	112	32x4 SS				1185	1185	1467	1696	1696		
OLYMPIAN																	
4-31x4 16.9 Remy			Stemg	Remy	D	3	112	32x3 1/2			11085	1085		1240	1565		
OVERLAND																	
4-41x4 27.2 Conn			Thun	A-Lite	C	3	113	37x4 SS			1215	990		1285	1485		
4-41x5 18.2 Conn			Thun	A-Lite	C	3	104	31x4 C			780	795	1940		1240		
6-31x4 25.3 Conn			Thun	A-Lite	C	3	116	38x4			1130	1120					
6-31x4 25.3 Conn			Thun	A-Lite	D	3	116	38x4									
OWEN-MAGNETIC																	
M-25	6-31x5 29.4 Bosch		Zenith	O-M	OM	6	125	34x4 1/2 SS			3300	3300		3650	3650		4350
O-36	6-31x5 33.7		Zenith	O-M	OM	6	136	35x4			3350	3350		3650	3650		5000
W-43	6-4 x4 38.4/Bosch		Zenith	O-M	OM	6	142	35x5 SS						5300		6300	6800
PACKARD																	
2-43			Ovn	Bijur	DD	3	136				4300						5550
2-35	12-3 x5 43.2 Delco											3850	5300				5500
PAIGE																	
6-31x5 23.4 Remy			Stemg	G & D	D	3	117	32x4 SS			1230	1230		1925	1925		
6-44	6-31x4 20.4 Remy		Rafid	Remy	D	3	127	34x4 SS			1775	2650					3200

PAN-AMERICAN									
G-5	6-31x5	22.4 G & D	Radid	G & D	D	3	120	32x4	SS
J-7	6-31x5	20.4 Boech	Radid	G & D	P	3	128	34x5	...
PATERSON	6-31x4	25.3 Delco	Stumb	Delco	C	3	120	32x4	C
PERLESS	6-31x5	33.8 A Kent	Special	A-Lite	DD	3	125	35x4	SS
PIERCE-ARROW	6-31x5	23.4 Boech	Own	Weths	C	4	134	34x4	QD
38-C-4	6-4	23.4 Boech	Own	Weths	C	4	142	35x5	QD
48-B-4	6-4	23.4 Boech	Own	Weths	C	4	142	35x5	QD
66-A-4	6-5	27.6 Boech	Own	Weths	C	4	147	35x5	QD
PILOT	6-31x5	23.4 Delco	Titan	Delco	DP	3	120	32x4	SS
4-4	6-31x5	27.3 Delco	Johnson	Delco	DP	3	125	32x4	SS
PREMIER	6-31x4	22.5 Splidif	Schebler	Delco	D	3	108	32x4	...
36-F	4-31x4	19.6 A Kent	Carter	A-Lite	C	3	108	30x3	QD
REGAL	6-31x4	30.4 Remy	Radid	Remy	DD	3	126	34x4	SS
REO	4-41x4	27.2 Remy	Johnson	Remy	DD	3	120	34x4	SS
ROAMER	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
C8-64	4-4	25.6 Boech	Stumb	Bijur	DP	3	128	32x4	SS
ROSS	6-31x5	33.8	W Lord	DD	3	130	35x4	SS	...
SAXON	4-21x4	12.1 A Kent	Schebler	Wagner	DD	3	96	30x3	DC
B-6-R	6-21x4	19.8 Remy	Stumb	Wagner	DD	3	112	32x3	SS
S-4	6-31x4	25.3 Delco	...	...	...	...	...	...	...
SAYERS	6-31x4	25.3 Delco	...	...	...	...	...	...	...
SCRIPPS-BOOTH	8-21x3	21.0 Remy	Zenith	Wagner	DD	3	110	32x4	SS
D-8	4-31x4	21.7 Remy	Zenith	Remy	C	3	120	30x3	C
G	6-31x4	19.0 Remy	Marvel	Remy	C	3	112	32x4	SS
SH-39	6-31x4	19.0 Remy	Marvel	Remy	C	3	112	32x4	SS
SIMPLEX	6-41x5	45.9 Eisman	Nrcumb	Boech	D	4	143	37x5	QD
V	6-4	23.4 Boech	Radid	Weths	DD	4	139	35x5	QD
SINGER	8-31x5	33.8 Weths	Zenith	Weths	D	3	127	34x4	...
STANDARD	2-45	...	...	...	...	...	...	...	...
STANLEY	4-31x5	22.5 Remy	Schebler	Weths	DD	3	119	34x4	SS
STEAMER	8-31x5	33.8 Remy	Radid	Weths	DD	3	125	35x4	SS
SK-4	6-31x5	36.0 Remy	Stumb	Delco	P	3	118	32x4	...
STEPHENS	6-31x5	19.6 Remy	Schebler	Wagner	C	3	112	32x3	SS
Salient Six	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
STUDEBAKER	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
SH-40	4-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
EH-4-50	6-31x5	36.0 Remy	Stumb	Bijur	DP	3	128	32x4	SS
E-6	4-41x5	30.6 Boech	Stumb	Bijur	DP	3	128	32x4	SS
STUTZ	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
SUN	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
TEMPLE	4-31x5	18.2 Remy	Zenith	Weths	P	3	118	32x4	SS
VELIE	6-31x4	25.3 Remy	Radid	Weths	DD	3	115	32x4	SS
38	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
WESTCOTT	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
S-18	6-31x5	29.4 Boech	Stumb	Bijur	DP	3	128	32x4	SS
WHITE	4-41x5	28.9	Own	L-N	P	4	124	35x5	U
16-Valve	4-41x5	28.9	Own	L-N	P	4	124	35x5	U
WILLIS-KNIGHT	4-41x5	27.2 Conn	Titan	A-Lite	C	3	121	34x4	SS
88-4	6-31x4	36.4 Remy	Zenith	A-Lite	C	3	125	34x4	SS
88-8	6-31x4	36.4 Remy	Zenith	A-Lite	C	3	125	34x4	SS
WILLIS	6-31x5	29.4 Conn	Titan	A-Lite	C	3	120	33x4	SS
88-6	6-31x5	29.4 Conn	Titan	A-Lite	C	3	120	33x4	SS
WINTON	6-31x5	33.7 Boech	Radid	Bijur	DD	4	128	36x4	QD
33	6-41x5	42.1 A Kent	Stumb	Own	Mag	124	35x4	QD	...
WOODS	6-41x5	42.1 A Kent	Stumb	Own	Mag	124	35x4	QD	...
Dual Power	4-21x4	12.1 A Kent	Stumb	Own	Mag	124	35x4	QD	...
*8-passenger. 14-passenger. 13-passenger. t-town car.									
**Convertible.									
DODGE-BROTHERS									
4-31x4	24	Delco	Stumb	Weths	DP	3	116	32x4	SS
6-4	25	28.4 Boech	Stumb	Weths	D	3	120	32x4	SS
4-31x5	19.6 Conn	Carter	Weths	C	3	105	30x3	QD	...
4-31x5	19.6 A Kent	Carter	Dynaco	DP	3	116	32x4	SS	...
6-31x4	25.3 A Kent	Stumb	Dynaco	P	3	116	32x4	SS	...
6-31x4	23.4 Remy	Stumb	Wagner	DP	3	117	32x4	...	...
4-31x5	24.0 Conn	Stumb	A-Lite	DP	3	115	32x4	SS	...
6-31x4	25.3 Conn	Stumb	A-Lite	DP	3	120	34x4	SS	...
FIAT	4-31x5	44.1 Boech	Zenith	Weths	D	4	140	35x5	QD
FORD	4-31x4	23.5 Own	...	...	...	...	...	...	...
T	4-31x4	23.5 Own	...	...	...	...	...	...	...
FRANKLIN	6-31x4	25.3 A Kent	Dynaco	D	3	115	32x4	SS	...
GLIDE	6-31x5	28.4 Weths	Radid	Weths	D	3	119	34x4	SS
4-40	6-31x5	28.4 Weths	Radid	Weths	D	3	119	34x4	SS
GRANT	6-31x4	21.6 Remy	Stumb	Wagner	C	3	114	32x4	...
HAL	12-31x5	39.6	Stumb	Weths	DP	3	125	34x4	SS
21-A	6-31x5	21.6 A-Lite	Stumb	Weths	D	3	118	32x4	SS
HALLADAY	6-31x5	29.4 Weths	Stumb	Weths	D	3	125	34x4	SS
8	6-31x5	29.4 Weths	Stumb	Weths	D	3	125	34x4	SS
HARROUN	6-31x4	16.9 A Kent	Stumb	Remy	C	3	106	30x3	...
HARVARD	4-31x4	14.4 A Kent	Zenith	Wagner	...	...	...	...	...
4-30	6-31x5	29.4 Remy	Radid	L-N	DP	3	121	34x4	SS
38	6-31x5	29.4 Remy	Radid	L-N	DP	3	121	34x4	SS
39	6-31x5	29.4 Remy	Radid	L-N	DP	3	121	34x4	SS
44	12-31x5	39.6	Stumb	Weths	DP	3	125	34x4	SS
HOLLIER	6-31x4	25.3 Remy	Stumb	Splidif	C	3	116	32x4	SS
188	6-31x4	25.3 Remy	Stumb	Splidif	C	3	116	32x4	SS
HUDSON	6-31x5	29.4 Delco	Own	Delco	D	3	125	34x4	SS
Super-4	6-31x5	29.4 Delco	Own	Delco	D	3	125	34x4	SS
HUPMOBILE	4-31x4	16.9 A Kent	Stumb	Bijur	DD	3	113	32x4	...
R	6-31x5	19.6 Remy	Schebler	Remy	C	3	110	32x4	SS
INTER-STATE	6-31x5	28.3 A-Lite	Zenith	A-Lite	DP	3	118	32x4	SS
JACOBSON	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
JONES	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
JORDAN	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
J-60	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
KING	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
KIRKEL	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
100-4	6-31x5	29.4 Remy	Radid	Weths	DP	3	125	34x4	SS
Double-6	12-31x5	39.6	Stumb	Weths	DP	3	125	34x4	SS
KLINE	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
6-38	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
LEXINGTON	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
6-0	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
6-R	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
LIBERTY	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
10-B	6-31x4	25.3 Weths	Radid	Weths	DP	3	120	34x4	SS
LOCOMOBILE	6-31x5	29.4 Remy	Stumb	Weths	DP	3	125	34x4	SS
38-Series II	6-41x5	48.3 Boech	Ball	Weths	DD	4	143	37x5	QD
48-Series II	6-41x5	48.3 Boech	Ball	Weths	DD	4	143	37x5	QD
LOZIER	4-41x4	28.9 Boech	Stumb	G & D	D	4	120	35x4	SS
84	6-31x5	33.7 Boech	Schebler	Boech	DD	3	125	35x4	SS
LIVERNE	6-31x5	33.7 Boech	Schebler	Boech	DD	3	125	35x4	SS
17	6-31x5	33.7 Boech	Schebler	Boech	DD	3	125	35x4	SS
MADISON	6-31x5	33.7 Boech	Schebler	Boech	DD	3	125	35x4	SS

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leese-Nerille, "Titan" Tillotson, "B & Ball" Ball & Ball, "Atr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Splidif" Splidif, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37x5 1/2 means that the rear tires are 37x5 1/2, and the front are smaller. Detachable top, 300x, means \$300 extra.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Tulsa, Okla.....	Tulsa Automobile Dealers' Assn.....	February	Burlington, Ia.....	Cars, trucks and accessories.....	Feb. 27-Mar. 2
Peoria, Ill.....	Peoria Auto Accessories Dealers' Assn. W. O. Ireland, Mgr.	February	Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Bronx, N. Y.....	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16	Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Portland, Ore.....	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 7-13	Lyons, France.....	Third Sample Fair.....	Mar. 1-15
Kansas City, Mo....	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16	Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Elmira, N. Y.....	Elmira Automobile Club. State Armory.	Feb. 11-16	Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Kansas City, Mo....	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16	Utica, N. Y.....	Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.	Mar. 4-9
St. Louis, Mo.....	St. Louis Auto Mfrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 18-23	Clinton, Ia.....	Clinton Automobile Dealers' Ass'n., Coliseum.	Mar. 6-9
Toledo, O.....	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17	Raleigh, N. C.....	Auditorium. John Kelley, Mgr.	Mar. 6-9
Ft. Wayne, Ind.....	Automobile Trade Assn., Concor-dia Gymnasium.	Feb. 13-16	Mason City, Ia.....	Annual Car and Truck, Automobile Dealers' Assn.	Mar. 6-9
Hartford, Conn.....	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23	St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Newark, N. J.....	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23	Watertown, N. Y....	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Albany, N. Y.....	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23	Cedar Rapids, Ia....	Cedar Rapids Auto. Trade Assn. Auditorium.	Mar. 11-16
San Francisco, Cal..	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24	Fargo, N. D.....	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15
Waterbury, Conn....	United Shows Co.	Feb. 18-23	Warren, Pa.....	Warren Automobile Dealers' Assn., Rossell Garage.	Mar. 13-16
Syracuse, N. Y.....	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23	Fort Fairfield, Me....	Reed's Garage. R. F. Reed, Mgr.	Mar. 14-16
Grand Rapids, Mich..	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23	Great Falls, Mont....	Montana Automobile Distributors, Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
Duluth, Minn.....	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23	Vancouver, B. C.....	Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.	Mar. 19-23
Springfield, O.....	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23	Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-23
Pittsfield, Mass.....	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23	Holdrege, Neb.....	Second Annual of Southwest Nebraska.	Mar. 20-23
Nashville, Tenn.....	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23	Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Des Moines, Ia.....	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vleet and Dean Schooler, Mgrs.	Feb. 18-24	Bridgeport, Conn....	Sixth Annual Cars and Trucks, Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.	Mar. 25-30
So. Bethlehem, Pa...	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27	Atlantic City, N. J.	Second Annual, Garden Pier. W. W. Garabant, Mgr.	Mar. 30-Apr. 6
Quincy, Ill.....	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23	Hartford, Conn.....	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars, Trucks.	Feb. 23-Mar. 2	Red Bank, N. J....	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Muskegon, Mich.....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2	Stockton, Cal.....	Third Annual San Joaquin Auto. Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Columbus, O.....	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2	Calumet, Mich.....	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20
			Hot Springs, Va.....	Convention National Association of Automobile Accessory Jobbers.	June 5-12

Conventions

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 8

New York, February 20, 1918

Ten cents a copy
Two dollars a year



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Your jobber will keep you well supplied—but watch your stock and order early and often.

Champion Spark Plug Company, Toledo, Ohio



Champion
"Minute"
Spark Plug
Cleaner

Here Is the Record

for



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Stocked and generally catalogued by over 200 leading jobbers.

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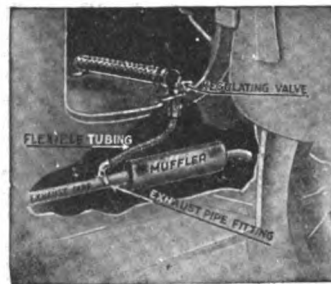
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UTILITY Protected Heater.....	\$16.00
UTILITY Front Seat Heater...	10.75
UTILITY Jr. Heater.....	8.00

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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A Matter of Speed and Space

You will not be deriving full satisfaction from your automobile until you have equipped it with a speedometer. And you will not be receiving full satisfactory speedometer service until you have selected the

CORBIN-BROWN SPEEDOMETER

Increase the pleasure and convenience of touring this season by equipping your car with this remarkable instrument.

Investigate it carefully.

It is accurate

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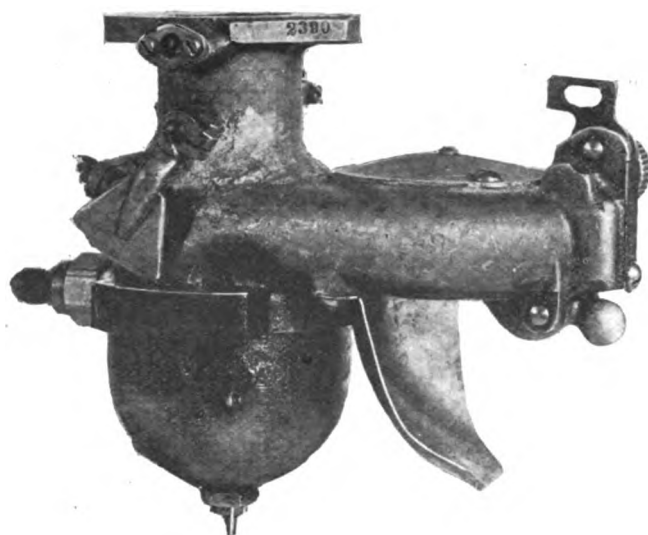
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The American Hardware Corporation, Successor

NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
Makers of Corbin Duplex Coaster Brakes for Bicycles



This otherwise hopeless break has been successfully soldered—as shown above.



THIS letter tells a story new to the chemistry of motor-dom—of a broken aluminum casting soldered back in place with no warping or distorting of the metal, with not the slightest variation in its delicate adjustment. Who, not seeing this thing done, could have conceived it possible?

Yet it is not only possible, but is now an everyday occurrence—become so through the use of

THE IMPOSSIBLE(?) ATTAINED!

INDIA, N. Y. 1918
February

DETROIT CADILLAC MOTOR CAR COMPANY
BROADWAY AT 62ND STREET
NEW YORK

BRANCHES
NEWARK, N. J.
BIRMINGHAM, ALA.

TELEPHONE, COLUMBUS 7700

February 14, 1918.

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Brooklyn, New York.

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Sterling Aluminum Solder Company
501 Eleventh Street, Brooklyn, N. Y.

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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, February 20, 1918

No. 8

BUSINESS

IN

Cars, Trucks and Tractors

Keynote of Kansas City's Two Shows

By Ray W. Sherman

KANSAS CITY, Feb. 16 — The Kansas City motor car, truck and tractor shows have put 1918 business over the top in the great Southwest.

The public looks to the shows as the trade's first business step of each year, wherefore the public came to the shows to see if the dealers were going to do business this year.

And when the public came it found the shows bigger and more enthusing than ever. The crowds were just as dense, it was just as hard to get around, the exhibits were just as attractive, the same old companies were there, there were smiles on the faces of the salesmen, everybody looked, talked and acted like business—and many who came to look bought before leaving.

Normally it might be expected that the attendance would be off, that the shows would not be up to the standard of former

years. These conditions have existed in some cities, and small crowds have done harm. But the Kansas City dealers determined their shows should be successful—and they were successful.

The tractor show, which is separate from the car show and is staged by the manufacturers, is the greatest tractor show ever held. There is more progress and development evidenced than at any previous period of tractor history.

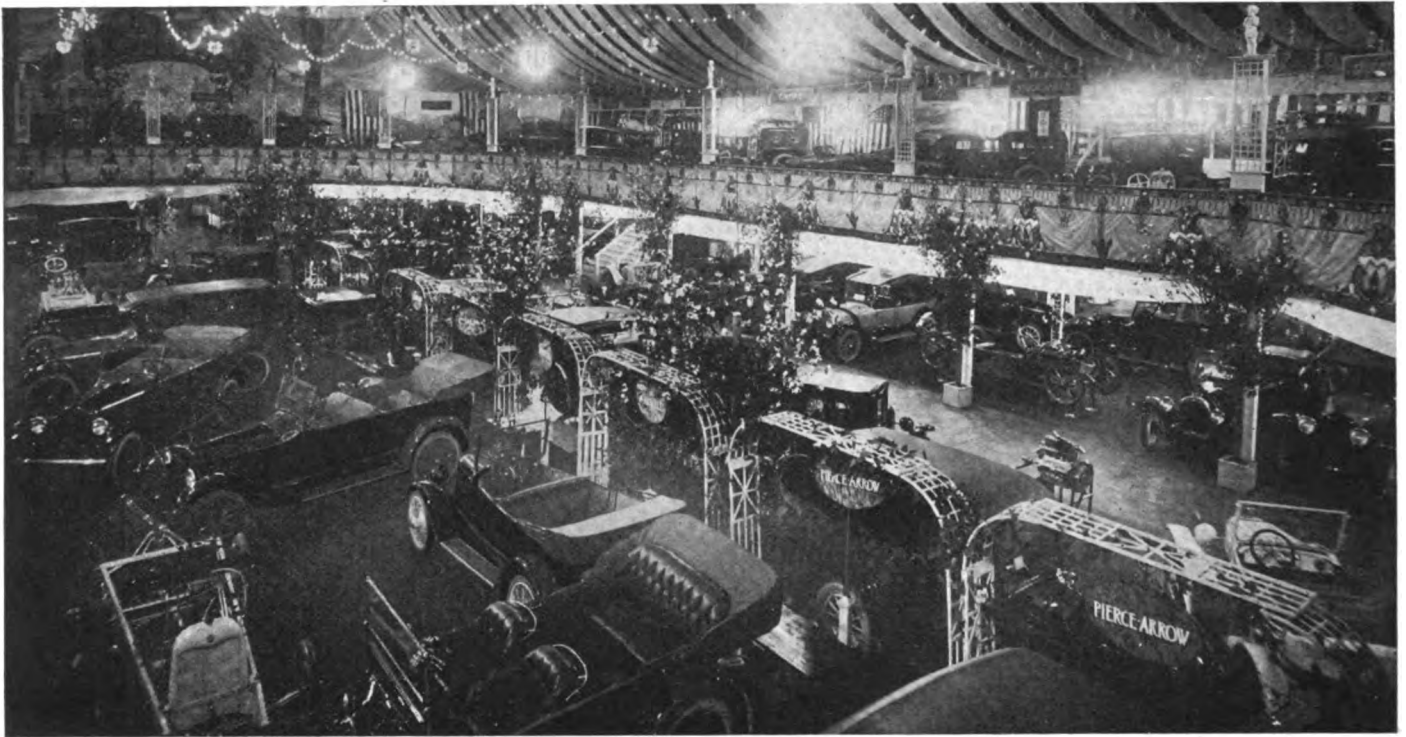
Design has made wonderful progress. There is evidence of engineering study and action. The tractors are passing from the farm implement class into the class of automotive engineering. The tractor industry has made an enormous stride.

And there is a bigger interest in the tractor than ever before. Farmers from the great Southwest are here in numbers. They want to know all about the machines and what they can do. The show has a critical audience.

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The Show the Kansas City Dealers Staged



THE Kansas City show has gone over big; it means more to the Southwest this year than ever before. It means bigger and brighter business prospects. It has put new spirit into the dealers and the urge to buy into the hearts of prospects. The show drew the best buying crowd that has ever gathered in Kansas City. Hotels are packed to overflowing. The man who thought the show this year would be a fizzle has been disillusioned.



Tractor dealers are here in force. They are taking their first steps into the automotive field. Many have taken on tractors; more will do so. Kansas City distributors are getting into the business, and when one distributor takes on a tractor it means a wide territorial distribution. The visit of one distributor to the show means more than the visits of many dealers.

Throughout both shows there is a busy, bustling atmosphere. The trade seems to be on its toes for the coming season. The distributors and dealers know there is big business to be had this year if they go after it, and they are going after it.

A feeling of confidence has been established—but not without an effort. One of the factors was a wholesale general advertising campaign, which cost \$10,000, and was worth it. Another factor was a big dealers' rally dinner Tuesday. Another factor was a whole-hearted newspaper support throughout the territory. Another factor was the determination of the dealers that the

show should run with snap and optimism. Another factor was efficient show promotion.

In Kansas, western Missouri, Oklahoma and the other territory that buys through Kansas City there is prosperity this year. There is money enough for good business, but monetary circulation needed a stimulant. The shows furnished this stimulant. It is evidenced in the sales at the car show. The exhibitors say the crowd this year is the best buying crowd they ever had. Some declare this is due to the timidity of buyers that has been overcome by the exhibitions.

All along the line this winter in the bigger shows—with a few exceptions—the dealers have simply forced a good beginning upon 1918. They have realized that the shows **MUST BE MADE SUCCESSFUL**. What an unsuccessful show would have meant to this territory Kansas City will never know, for this appreciation could come only through a show that was not a success—and that is something these two big shows are NOT.

Crowds Pack Kansas City's Motor Car Show

Business for 1918 Opens with Enthusiasm—Public Confidence Is Restored—Dealers Get New Spirit—Southwest Looks for Good Year

By Ray W. Sherman

KANSAS CITY, Feb. 16—The Kansas City motor car show means more to the Southwest this year than it has ever meant before. And the fact that the show has been very successful has a dollars and cents value that cannot be reckoned.

Had the Kansas City dealers not put their show across in the big way they have done the prospects for 1918 business in this section would not be so bright as they are to-day.

The show has gone over big. A critical period has been passed successfully.

Outlook Is Optimistic

Dealers have a new spirit. The public has a renewed confidence and an awakened desire to buy cars. The outlook is optimistic in the extreme compared with the rest of the country.

Each night the show has been crowded. To those who came the affair had all the earmarks of the preceding hurrah days of big business and growing sales. The man who thought the show might be a fizzle this year found in it a wonderful object lesson. The effect on the public has been good.

The show is showy. The decorating, by E. W. Campbell, of Boston, arranged for by the National Association of Automobile Show Managers, of which Manager E. E. Peake is president, is fine. The show is pretty. The public likes it.

There is an extensive truck exhibit, and all the show publicity lays emphasis upon the business aspect of the passen-

ger car and the economic necessity of the motor truck. The truck exhibitors are well pleased. One big truck deal was made during the show, the Moriarty Motor Co. taking on the Federal.

The show, which for two years has been in the J. I. Case building, is back in Convention Hall. This gives a more showy type of building and one in the downtown section, but there is about 25 per cent less room. Kansas City, like all other big cities, must solve its show building problem in a permanent way soon. Too many shows have to speculate each year as to where the affair will be held. This uncertainty should be removed and a proper auditorium type building of sufficient size erected in some manner. Kansas City is considering the matter. It could use the building for many things and the town's civic pride should make the task one of not great difficulty.

One or two things exemplify what the show has meant to business. One is that the hotels are packed as never before in their histories—and this is not exaggeration. The Muehlebach began turning down reservations for show week Jan. 4.

Better Buying Crowd

The show had a better buying crowd than for several years. This is taken to indicate that the public, influenced by Vanderlipian propaganda, had been holding off and came out of its shell under the influence of the show. Several dealers made real show sales.

Quite a few dealer contracts were signed. Dealers who came in from the territory signed up for both cars and trucks. There is no stampede to the low-priced cars, although they, of course, are centers of interest. But there is money in the Southwest and the farmer who has the money is just as keen for a \$2,000 car as his city neighbor. They all have wives and daughters—who count in car buying.

Determined to Make Show Successful

The show was successful because the Kansas City dealers made it successful. They determined not to let it fail.

One of the factors in the show's success is that the Kansas City Motor Car Dealers' Association keeps in touch with its territory and the newspapers in it throughout the year. The secretary sends out news of association activities frequently and keeps the Kansas City trade in the territorial public eye. Then, when show-time comes, the way is much easier. The year-around publicity has a cumulative effect.

Before the show the country newspapers, as well as the Kansas City newspapers, use show publicity. They believe that the show helps business all over the Southwest—and that business helps the newspapers. Wherefore, the newspapers are glad to help the show. Sunday of show week 30 dailies in western Missouri, Kansas, Oklahoma, Texas, Nebraska and Colorado run automobile sections.

(Continued on page 41)



A special building was put up for the Kansas City Tractor Show and, though it cost over \$18,000, it has been one of the best investments ever made by the trade. There were forty-three different makes of tractors on view

- 1—A large tractor maker, who has orders for 11,000 machines, stated to-day that two-thirds of these will be sold through motor car dealers. This maker has built over 1000 tractors in the last 9 months.
- 2—Another tractor maker has a complete plant for making over 20,000 tractors this year. Not only are the parts ordered, but production will soon start. This tractor will have a complete electrical system, including starting and lighting.
- 3—A third tractor maker, who announced a new model last fall, had specifications for over 2000 machines in three weeks after making announcement.
- 4—A large Texas distributor of tractors says that five out of every seven of his sub-dealers are motor car dealers, and are handling the tractors along with their other automotive apparatus.

Car Dealer Becoming Dominant in Tractor Trade

Kansas City Show Reveals Tremendous Impetus Gathered During the Last Year

By David Beecroft

KANSAS CITY, Feb. 16—The few examples given herewith—they are only four of the many that are tossed at you every day at the third annual tractor show that has been running here all week—give some indication of how the tractor industry is growing and how the motor car dealer is becoming the dominant factor in the distribution and sale of tractors.

This year the Minneapolis show had tractors, trucks and motor cars all to-

gether. Kansas City was not so fortunate, as there is not any building in this city large enough to hold all the motor cars, not to mention trucks and tractors, but the Kansas City Tractor Club came across in true Kansas City spirit to meet the exigency and built a special building just for the show.

For the last two years the show has been held under a tent, but this year it has all the comforts of home in a special one-story building erected in the

fine plaza just across from the Union depot, where you cannot enter the city without seeing the tractor show or the Sweeney motor school. The building cost over \$18,000 and most of it will be torn down, the remainder standing as a kind of club for soldiers en route through Kansas City.

With forty-three different makes of tractors, representing 80 per cent of the tractor makers, the show was really a

(Continued on page 12)



MORE THAN 400 KANSAS CITY SALESMEN AND DEALERS gathered the Saturday night before the show opened to hear an address and to see model exhibits of good and bad show salesmanship. The meeting was in the salesroom of the H. A. Dougherty Motor Co., Republic truck dealer, and the speaker talked from the top of an office desk. The exhibits, shown on pages 10 and 11, are about 15 feet in front of the audience

Kansas City Puts Over a Big Merchandising Idea

Holds a Meeting Before Its Show Starts to Teach Salesmen and Dealers How to Get Greatest Value Out of a Show Exhibit

(Look at the pictures on pages 10 and 11)

KANSAS CITY, Feb. 14.—There are no salesmen sleeping on the runningboards and fenders of the cars in Kansas City's show this week. They are standing up straight, looking like real salesmen and selling cars according to the latest and most approved method.

The reason is simple. It is that Saturday night before the show began the Kansas City Motor Car Dealers' Association staged a motor show salesmanship meeting at which dealers and salesmen were shown the right and wrong ways of getting results out of the money and effort that are put into the show.

This meeting was in the salesroom of the H. A. Dougherty Motor Co., and more than 400 men were present. The meeting was one of the greatest things any set of dealers has ever done. It is something that every association should do every year—or oftener. It is a sample of the real merchandising that this industry must do if it is ever to get into a true business classification.

When the call for the meeting was

sent out by Secretary E. E. Peake it was realized that the affair was only an experiment. It was not known how the salesmen and dealers would take to it. But 400 chairs were ordered—and when the meeting came to order the chairs were full and quite a number of men were standing.

As a starter some of the principal points of show exhibiting and salesmanship were touched upon by Ray W. Sherman, of MOTOR WORLD. Then came the feature of the evening, an exhibition of how and how not to put on a show exhibit.

At one side, in a space the size of those at the show, was an exhibit, which was well decorated and which possessed all the possibilities of a good display, but which was so filled with cars that there was little room left for visitors and it was impossible to get a real look at one of them. Coats were piled on and in the cars, literature was on the fenders, hoods and runningboards, an intoxicated friend of the salesman was asleep in a sedan, papers littered the floor and were kicked under the floor by a greasy

colored porter, the salesman wore his hat on the back of his head and smoked a cigar and acted the part to perfection. The salesman—H. D. Ellenwood, of the Butler Motor Co.—must be very good else he would never have known how to be so rotten.

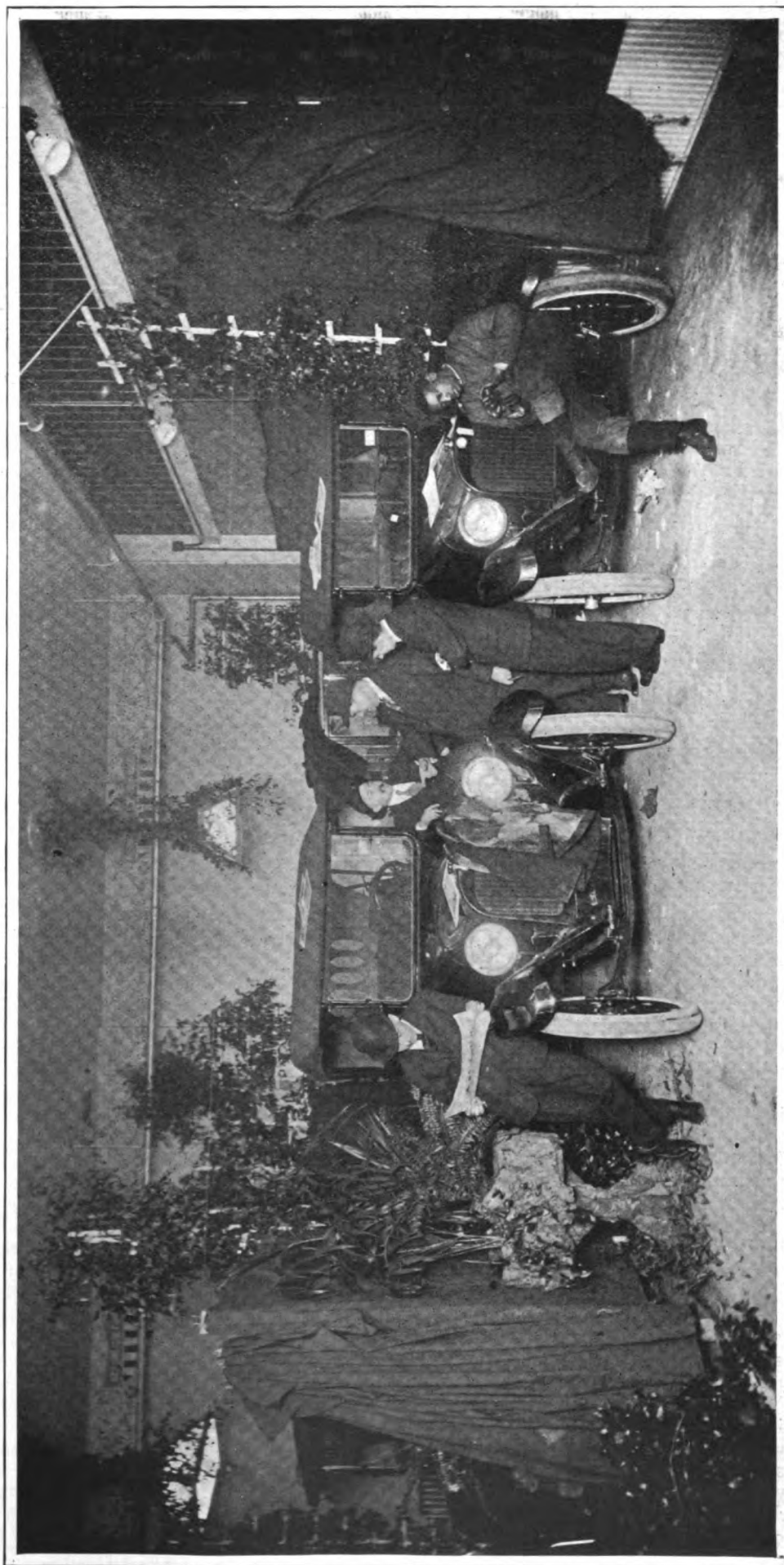
He knocked other cars, he made fool remarks and he did everything a salesman should not do. The sketch made a big hit.

Then a good exhibit was staged. There was plenty of room—as the picture shows—and there was a rug on the floor, a neatly uniformed porter who kept the floor clean, a desk and small business office, the salesman—H. D. Ellenwood, of the Butler Motor Co.—wore no hat, did not smoke, did not lounge on the cars, did not make fool remarks and acted as a salesman should act. The comparison got home.

This meeting should be worth thousands of dollars to the dealers and salesmen of Kansas City. It would be worth as much to the dealers of any other city. It is a big step in the right direction.

How *NOT* to Run a Show Exhibit

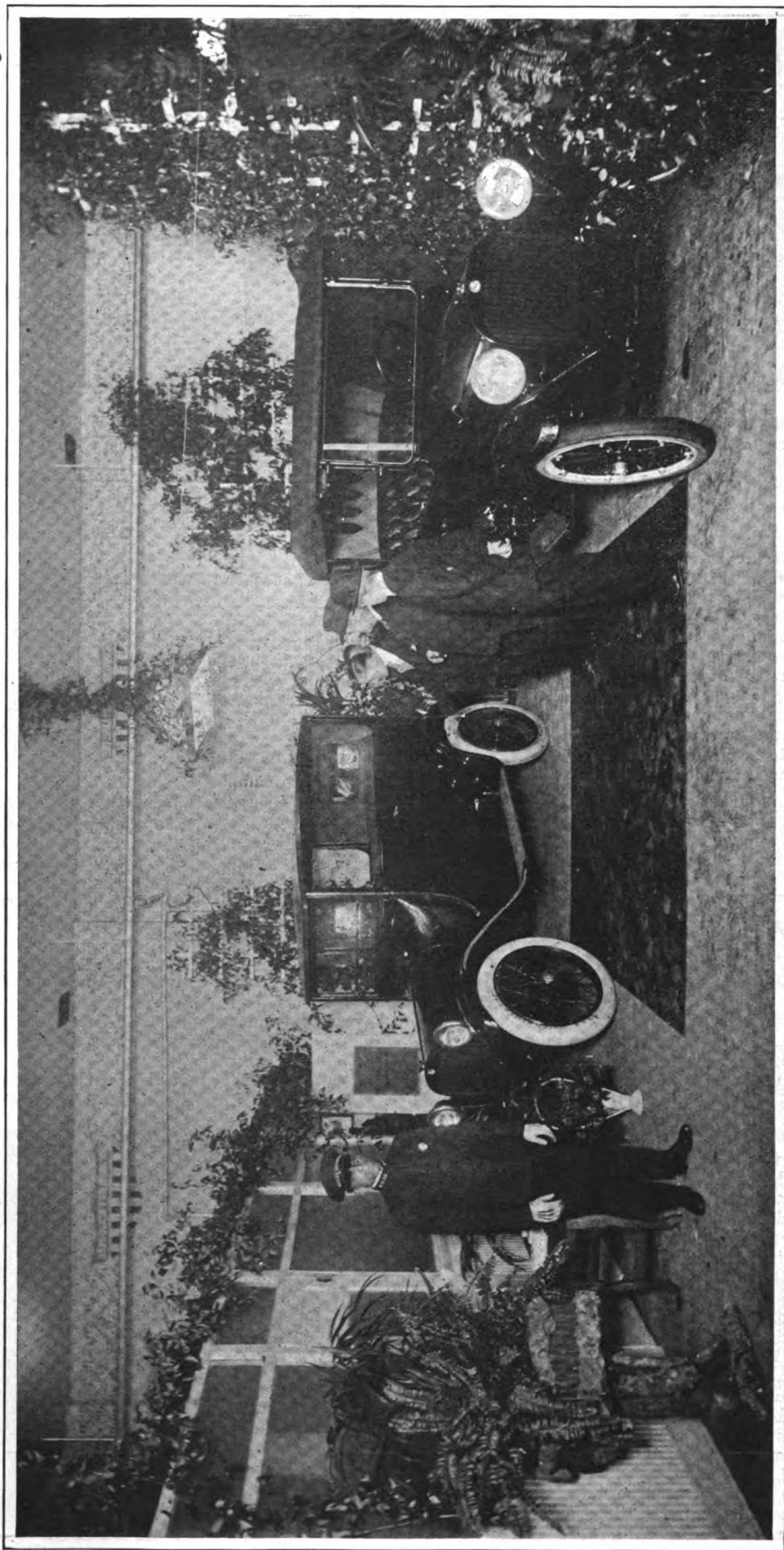
Read the Story on Page 9



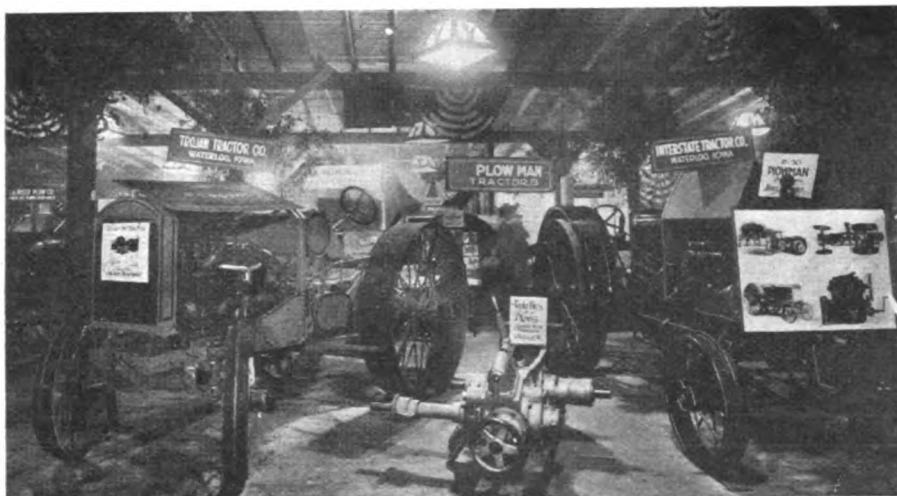
IN this Kansas City show salesmanship demonstration the space is jammed with 3 cars, coats and papers are everywhere, the porter is cleaning his nails with a pair of pliers, one salesman is reading a newspaper, the other smokes a cigar and has his hat on the back of his head and there is a drunk in the sedan, although he can't be seen.

The Right Way to Run a Show Exhibit

Read the Story on Page 9



THE space, decorations, cars and fixtures in this GOOD exhibit are practically the same as in the BAD exhibit. Here are the differences: One car has been taken out and the sedan set across the corner; a rug is used; the porter is uniformed and on the job; the salesman wears no hat; a literature table is used. The salesman in both pictures is H. D. Ellenwood, who took the part of the bum salesman. See how even he looks different in the two pictures.



Inside the building especially put up for the Kansas City Tractor Show there were nearly all the comforts of home. This is one of the exhibits

(Continued from page 8)

representative one, and nothing more in the way of management and service on the part of the management could be asked for. The Kansas City Tractor Club handled it well.

The show was crowded all week. It opened at eight each morning, and the farmers and dealers were always waiting to get in. Having the tractor show the same week as the motor car and motor truck show is an excellent idea. The only thing more to be desired is to have all three in the same building. Henry Ford's tractor was not present, but it was a constant rumor around the show that 1000 Ford tractors are soon to be in the hands of the dealers in this country. This was good news.

If Ford was not present there were not a few evidences of how the tractor industry has profited in the last year because of the influence of the motor car and motor truck maker.

Tractors Follow Car Design

One of the sensations of the show was the new R. & P. tractor, which arrived as late as Thursday afternoon. It is made by the Republic Motor Truck Co., Alma, Mich., which is to all intents and purposes the same as the R. & P. Tractor Co. of the same place. The R. & P. is made up of the first letters of the names of the two leading spirits in the Republic truck, Ruggles and Parsons.

The R. & P. tractor is a real motor car job. It is the first with a pressed steel frame heat treated. No other tractor maker that we know of has used such a frame. It has a special design of Torbensen internal drive rear axle. It has a set of brakes. It has a motor car design of gearset. The complete layout of the engine, clutch, gearset and rear axle is practically the same as in a motor car. It is right up to the minute with the Italian design of rear wheel with hinged mud clips, the same as used so successfully on the artillery wheels in Italy. The job sells at \$1,395 and will soon be in production.

This is only one of the evidences of motor car influence. There is another brand new tractor, the Trojan, just completed and shown for the first time. It was not finished in time for the Minneapolis show. The Trojan is also a special motor car type, although not built by motor car makers but by Foot Bros. Gear & Machine Co., Chicago, that has been making tractor gears and other heavy gears for years. The Trojan is to be manufactured by the Trojan Tractor Co. of Waterloo, Iowa.

More Motor Car Types

The Trojan is the only tractor using rear wheels 60 in. in diameter that has a live rear axle, the same as used in a motor car and, of course, having all parts just as well enclosed as in a car or truck. The Foot combination transmission system and rear axle has made this possible.

A year ago it was said that the necessary gear reductions between the engine and 60-in. rear wheels was too great and that it could not be done. Mr. Foot has done it, but with what success cannot be told until he has tried the job out, because as yet it has not been completely tried out in continuous service.

This year we have the Samson tractor,

which is being made by the General Motors Truck Co. and being sold in some places through Buick dealers and generally through G. M. C. dealers. It has already been described and is shown in the same form. It has extremely low rear wheels, 41 in. in diameter. Final drive is by internal gear design with the gears not enclosed.

There are many other examples of what changes have taken place in the past year, changes which tell in unmistakable words that the tractor is here and the looked for development rapidly under way.

The Parrett tractor, the product of the Parrett Tractor Co., Chicago, and a design that has been very successful for years, has been improved in that Timken roller bearings are used to carry the large front and rear wheels. The rear wheels are 60 in. in diameter and the steel band or tire is 10 in. wide. This tractor had the spur pinion drive to the rear wheel exposed, but in a new model an internal drive has been fitted and it is entirely enclosed.

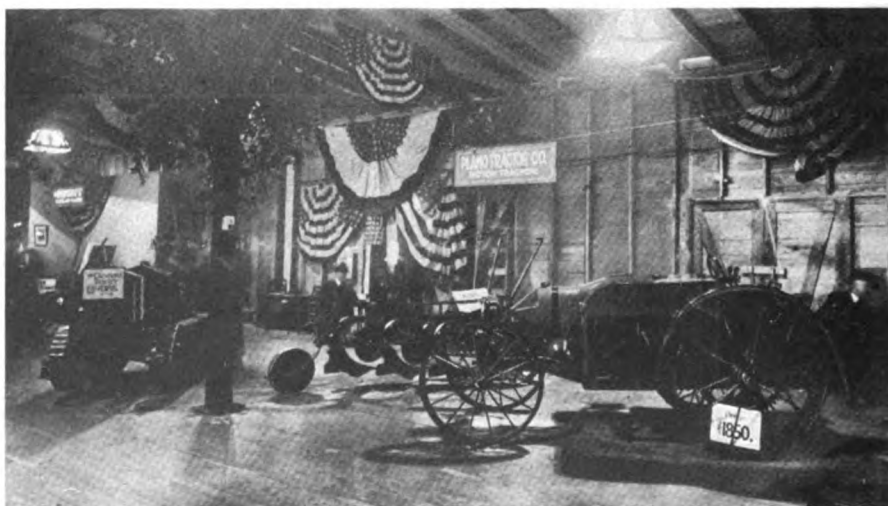
A new design of gearset has been fitted with smaller and lighter gears. It gives three forward speeds instead of two, the highest speed being for work where the tractor has a light load, such as traveling from one field to another. This higher speed is a time saver. This tractor has the latest design of Buda tractor engine with detachable cylinder head, force feed lubrication throughout, and represents the highest production of the Buda company in engine manufacture.

Enclosing All Parts

The problem of entirely enclosing all of the tractor transmission machinery is evidenced by the work of another company that specializes in the manufacture of transmission systems for tractors, namely, the R. D. Nuttall Co., Pittsburgh, which has its latest gearset design in a new tractor known as the Sexton, manufactured by the Sexton Tractor Corp., Asbury Park, N. J.

In this gearset the same object has been in mind, namely, designing a gearset in which you can get the necessary reduction between the motor and rear

(Continued on page 41)



Even in the tractor show the American flag dominated the decorations

You Must Be An Automotive Dealer

One of the Big Thoughts at the Kansas City Show Last Week Was the New Many-Products Phase Into Which the Motor Car Trade Is Rapidly Entering—Get Into Line—Be an Automotive Dealer

KANSAS CITY, Feb. 14—A short time ago the word "automotive" was new and almost unheard of. To-day everybody is using the term about the Kansas City car, truck and tractor shows, where thousands of dealers from the great Southwest are gathered to witness the trade's opening effort and display for 1918.

Many had the idea in mind, but had no name for it, which is why the term "automotive" has been so readily accepted and taken up, for the "automotive" dealer is simply one who sells all the numerous gasoline power products that are used by the public in his territory.

One of the best known and most successful distributors here is the Hudson-Brace Motor Car Co., and this concern is rapidly turning into the automotive field. The company has handled the Hudson car for four years, it has recently taken on a truck, for some time it has been handling the Lalley-Light in a separate building, and while it does not handle a tractor it is looking with keen eyes at this field.

W. J. Brace said: "I used to be an implement man. I used to be able to go to a dealer and say: 'Here is a plow, a wagon, a harrow, and this and that and the other thing.' We could offer him a complete line. We could give him something to meet every need of the buyers in his territory. As a motor car distributor I want to be able to do the same thing in the gasoline field. I believe the distributors must in the future be able to say to the dealer: 'Here is a line of cars, a truck, a tractor, a farm lighting system, a trailer and all the other things you need to get all the business in your territory.'"

Quite a number of the distributors here are adding trucks and tractors. A composite picture of the distributors shows a truly automotive line-up, although there is no one of them as yet who is automotive in all the possibilities of the word. For instance: Hudson-Brace sells one car, a truck and a farm lighting system. The H. A. Dougherty Motor Co., Republic truck distributor, also sells tractors. Some of them sell a car, truck and trailer, and so on. But they are all moving into the automotive field.

It is considered that the dealer of to-day who sells motor cars, and only one

class of car at that, is not operating the soundest possible business. If his factory should burn down some night he would be left with an investment up to a quarter or a half million dollars and nothing to do with it.

Furthermore, when a dealer handles passenger cars only and a new financial condition—such as at present—affects the sale of cars the one leg under the dealer's business becomes weak, but if the dealer has several lines of goods his business has several legs and his gross volume isn't so much affected even if one of the legs of his business be cut off.

There is, for instance, one dealer in a small Kansas town who has since Dec. 1 sold one passenger car, but in the same period he has sold 9 trucks. Without the truck end of his business his volume would be 90 per cent less.

There is in Nebraska a dealer who has sold 9 farm lighting plants in one week. He is in close touch with the farmers through the cars he has sold and is able to approach them on a friendly basis. This added automotive product has given him a field for profit where nothing existed before.

Farm lighting systems, distributors state, are best sold when mounted in a trailer instead of on the back end of a car, because the trailer can be unhooked and left with the farmer for several

hours if necessary. Cord enough to lead the lamps into the house is, of course, necessary. Installation of the apparatus is generally left to the local electrician, who, when he sees the automotive dealer pushing this apparatus and making business for the electrician, becomes a booster and a tipster for the dealer.

The dealer who doesn't seriously consider these—and all the other—phases of the business is shortsighted. There is one distributor of cars and accessories farther east who took on a farm lighting system and couldn't get his car dealers to take it on. They all admitted it to be a good thing, but they wouldn't take the agencies. The distributor had the agency and had to move the goods, so he had to turn to the small electrical contractors. And this distributor found in his section 150 farm houses all wired and waiting for electric current. This same situation is said to apply everywhere. It is a common practice in building farm houses to-day to install wiring. The failure of these dealers to take on the farm lighting system means that this business has been thrown into the electrical trade. A trade custom has been established.

In taking on trucks dealers should investigate and make sure they get the one their prospects need, and that it is a good truck. The same applies to tractors and the other automotive products.

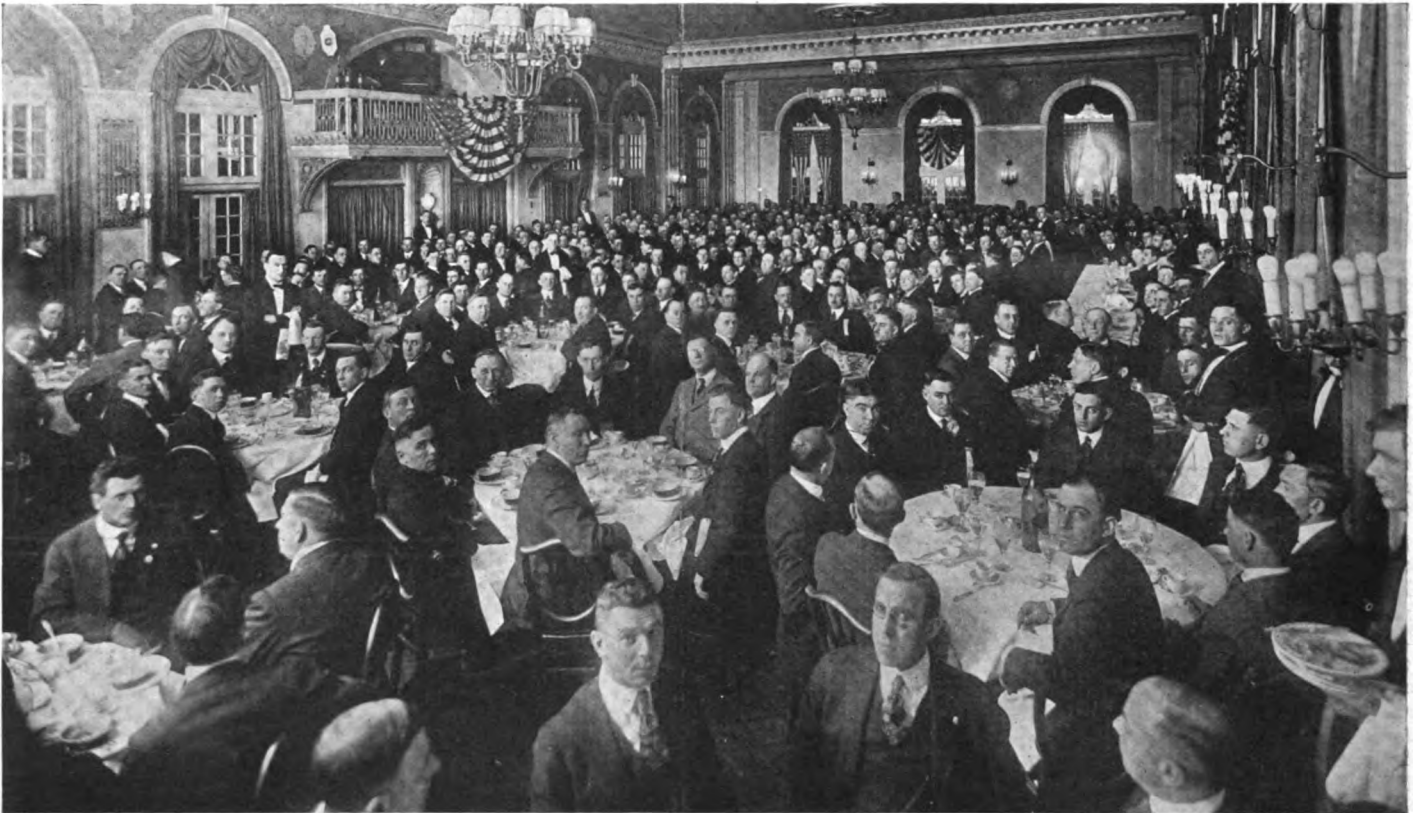
The Automotive Dealer

and the money he might make in a typical western county in an average year

	Gross Business	Gross Profit at 20 Per Cent	Net Profit
Ten cars at \$2,000.....	\$20,000	\$4,000	\$2,000
Twenty-five cars at \$1,000.....	25,000	5,000	2,500
Twenty trucks at \$2,000.....	40,000	8,000	4,000
Ten tractors at \$1,200.....	12,000	2,400	1,200
Twenty-five farm lighting systems at \$500	12,500	2,500	1,250
Accessories	2,000	400	200
Tires	4,000	800	400
Shop and garage.....	5,000	1,000	500
Gasoline	1,000	(10% prof.) 100	50
Twenty trailers at \$150.....	3,000	600	300
Total	\$124,500	\$24,800	\$12,400

Dealers Should Have No Fear

There Is Nothing Alarming in the National Situation, Says Alfred Reeves, General Manager of the N. A. C. C., to Big Meeting of the Trade of the Southwest



Nearly 600 dealers and distributors representing every section of the great Southwest gathered during the Kansas City show to hear General Manager Reeves of the N. A. C. C. and David Beecroft, Directing Editor of MOTOR WORLD, talk on the AUTOMOTIVE dealer

KANSAS CITY, Feb. 13.—There is nothing in the national situation that should cause dealers to become alarmed, stated Alfred Reeves, general manager of the National Automobile Chamber of Commerce, in an address yesterday noon to nearly 600 dealers of Kansas City and the Southwest.

His words were of an assuring nature, and have done a great deal to instil confidence in the dealers. He has also spoken to dealers in Minneapolis, Des Moines and Omaha and will speak in St. Louis and Indianapolis on his way back east.

There is not and will not be any gasoline shortage, he said.

There will be no tire shortage.

The steel situation has been taken care of.

The tin situation has been settled.

The question of curtailment is now thoroughly understood.

The motor car has been classed as a public utility.

Both Reeves and David Beecroft, directing editor of the Class Journal papers, impressed upon the dealers the

necessity of becoming "automotive"—that is, taking on trucks, tractors, farm lighting systems, trailers and other gasoline motive apparatus that is of service on the farm and elsewhere.

The dealers were urged to get into the business readjustment situation with a vengeance, because, it was pointed out by both speakers, this is the way that the stay-at-home helps in winning the war.

At the close of the meeting the dealers cheered long and enthusiastically. They talked at the show the rest of the day about the encouragement derived from the meeting, which was one of the most successful and valuable trade gatherings ever held. At 12 o'clock Tuesday the management of the Muehlebach Hotel, where the dinner was held, expressed the opinion to Show Manager E. E. Peake that 350 covers would be enough, but when the luncheon began there were 414 men in the ballroom, about 100 more in an overflow set-up on the mezzanine floor, and about 50 more in a second overflow meeting in a third room, all of whom moved into the ballroom when the speaking began. The addresses follow:

Transportation Will Win the War

By Alfred Reeves

General Manager, National Automobile Chamber of Commerce

THE manufacturer depends on his dealers for his distribution, and the prosperity of the dealer is the thing that permits the prosperity of the automobile manufacturer.

I want to congratulate you gentlemen on the spirit of optimism and energy that is self-evident all through the West; and I want to congratulate you on this fine show that you have over here in Convention Hall, which is one of the best I have ever seen. I want to congratulate you on having at the head of your Kansas City Dealers' Association a great co-operative worker like A. T. Clark, and as manager of the show a man who knows your needs and the needs of the automobile men so well as E. E. Peake.

It is several years since I have been in Kansas City, and, like all Western cities, they change almost every night. The thing that has impressed me more since I got into the town is the increased number of cars on the streets.

You men ought to be prouder to be in the motor car industry at this time than at any other time in its history, because you are supplying the thing that is most needed at this time, either on land or on the sea, and that is transportation.

You men ought to keep in mind that you are not selling motor cars now on streamline bodies and things of that kind, but you are selling a utility vehicle for the transportation of the individual and material.

Transportation Is the Bottle Neck

Transportation in this country in connection with the war is the real neck of the bottle, beyond which nothing can go until it is of the proper size. The railroads have got to get better. We need ships if we are going to take care of the boys on the other side.

So, the man who buys a motor car now does more than make himself more efficient. He conserves coal, and he aids the railroads in that he opens up more facilities for them to handle other kinds of freight. The automobile industry, next to the steel industry, is the most important industry connected with the war at this time. Men like Mr. Durant, Mr. Dodge, Mr. Willys, men at the heads of the great plants of this country, are at Washington accepting all the work that Washington wants to give them that will help to win this war.

In this great crisis men of the stamp of these men are needed at Washington.

Washington is a busy place. It is a place where things move very fast. Just as some one mentioned a while ago, things that apparently are all right today are very much disturbed to-morrow,

because of the emergencies of the present crisis the country is in.

You will hear from time to time things that appear alarming from Washington. There are some alarming things that happen there, and some things in connection with your business, which is of vital interest, because it is going to affect your trade.

You heard a good deal regarding gasoline, the fact that there might be a shortage, and that you ought to be more economical in its use. And that is a good suggestion. You should be economical and not waste anything in these days.

But there wasn't any real shortage in gasoline down there. The Bureau of Mines' report shows that they are making almost seven million gallons of gasoline every day. It shows further that the needs of the war—not the needs at present, but the needs six months from now—will be at the rate of a million gallons a day.

No Shortage of Gasoline

And it will interest you gentlemen to hear that at the present time, and for the last two months, *there has been an over-production of gasoline of more than a million gallons every day.*

The reason for that is that the Government needs fuel oil, and cannot get it without first taking off the gasoline and kerosene and other commodities.

And as to the price of gasoline, it is worth noting that of all commodities

used in connection with the war, gasoline has increased little, if anything, in price.

So the gasoline problem is no problem.

They are asking for a wider use of gasoline by everybody. The chairman of the Petroleum War Service Commission, A. C. Bedford, head of the Standard Oil, asked that everybody use gasoline so the refineries can get out the fuel oil that the Government needs badly.

The other day I read that the Government had taken over all the fuel oil from all refineries which made more than one hundred thousand barrels per year, so that it would be sure of the supply and would know that it could get fuel oil when it needed it.

Plenty of Rubber for Tires

We heard a good deal about the shortage of rubber, and the possibility that there would be no ships to bring it over. The ships that are bringing rubber here come to the West Coast, not to the East Coast, any more.

They made twenty-one million tires in the country last year. One company made over five millions.

Rubber is cheap. It is selling at 76 cents a pound. Two months ago it was selling at 56 cents a pound. Before the war it was \$1.10. *So there will be no trouble about getting pneumatic tires or solid tires.* The increase in price is due to the increase in the cost of fabrics and labor.



The picture on the opposite page shows the principal part of the gathering that heard Reeves and Beecroft. This is an overflow in the gallery

Some of these great rubber companies are arranging for their own supplies of fabrics by raising cotton in the Southwest. *So there will be no great problem for the man who uses a car, so far as the two essentials are concerned—gasoline and rubber.*

We had trouble at Washington because they said there was a shortage of tin. They sent for us and said: "You are using too much tin. We need it in connection with the canning of foods."

The world's supply of tin is only about 155,000 tons, and is largely used in the canning of foods. When we showed them we used only about three pounds in the average motor car and four pounds in the average truck *they were not worried.*

Then they told us there was a shortage of chrome steel, and they brought the manufacturers to Washington in a panic on the basis that they were to cut their production in half. And I am free to say that there is a shortage in chrome, but that if they will give us the necessary time there will be no trouble about the manufacturers using nickel and other alloys that will make the cars just as good. What chrome is available will be given to ball-bearing manufacturers, so there will be no necessity of redesigning bearings.

The other day we were called over before the Fuel Administrator, and Dr. Garfield told us that all non-war industries—*Washington doesn't call anything a non-essential now; there are war industries and non-war industries—they asked that all non-war industries curtail their general production 25 per cent.*

Committee Appointed

A committee has been appointed to work in connection with that matter, the chairman of which is W. C. Durant of the General Motors Co., and members of which include Mr. Willys and Mr. Dodge and other big leaders, with a view to bringing a plan to the Fuel Administrator that will be satisfactory.

And yet I am free to say that I think you ought to be prepared for a reduced production in motor cars during the coming twelve months. I am free to say I think there will be a slight reduction in the selling of cars during these next twelve months, at least in the East, where we don't have the handling of the great crops that you have out here, and where things depress a little faster than they do in this optimistic territory.

Instead of making next year 1,740,000 passenger cars, which was the production last year—about a million and three-quarters—I am inclined to think it will not exceed more than a million and a quarter this year. The dealers should put the business on a war basis and handle their products along that line. I think your greatest fear will not be your ability to sell these cars, *but your ability to get them.*

There is one thing back of this question of transportation which is so serious, which I know has affected you out here, because the factories for a number of weeks have been unable to ship anywhere near the quantity of cars

they are able to make. So you are going to be affected somewhat until this weather opens up, and these railroads under this central control become more efficient. And I think they will become more efficient as time goes on, and will be able to care for the shipment of all commodities as well as those so vital to the success of the war.

We had a very interesting ruling from the Fuel Administrator the other day as to what the automobile is. There had been a good deal said to the effect that it was a non-essential and was used for pleasure riding only.

When the order came to close everything on Monday east of the Mississippi River the garages started closing up. The doctors and salesmen could not get their cars off the second floor, and there was a terrible roar and an avalanche of telegrams to me at Washington that something ought to be done.

Motor Cars Public Utilities

And so we took it up with the Fuel Administrator, and he promptly ruled that *motor cars were classed as public utilities, and as such garages were exempt from that Monday closing order.* I think that was a very interesting and important order to get from the Fuel Administrator, because in it he recognized that the use of a motor car is an important thing to a large number of people in this country.

In connection with the question of whether a motor car is a luxury or not, I was talking to Senator Gore at Washington the other day, and I said: "Senator, you don't think that a motor car is really a pleasure vehicle only, do you? The registration in Oklahoma increased 119 per cent last year. You don't mean to tell me that your good people in Oklahoma are buying these motor cars to ride around Oklahoma roads for pleasure, do you?" He said, "No, I don't think they do."

Gentlemen, it is the feeling of the automobile manufacturers, and I know it is the feeling of every red-blooded American and every man in this room, that the first thing you think of when you get up in the morning and the last thought when you go to bed at night is, *"How to win this war."*

Must Win This War

That is what we have got to do—win this war.

Whatever may happen after the war does not interest us very much if we don't win the war. And for that reason I think all you men ought to prepare yourselves to do those things that are necessary to help in the winning of this war.

I think we are all very much more interested, as Mr. Chalmers said the other day in talking to dealers, in having *democracy as usual after the war, rather than business as usual during the war.*

We all want business, and there will be plenty of business. But the business has got to be done with a fewer number of men and with more efficiency. It has got to be more efficient, and every man in this room has got to work more effi-

ciently—work harder. I think every man here ought to be mighty glad if the end of this war finds him no worse off physically and financially than he is now.

I think he should be very grateful, because after all, as we sit here in this room, we don't think as we should of what is happening on the other side. No matter how late your train may be, whether you have sugar in your coffee, and all these little trivial things, I want to say that *any man has got an easy job who is back of the first line of trenches in France.*

When this war began the motor car manufacturers were the first to write to Washington and offer to President Wilson their entire facilities of the automobile plants, and that offer still maintains. The Government can have the capacity of every automobile plant in the country *if it needs it.*

We don't think the Government is going to require it, because we have proven up to this time that the automobile manufacturers can make stuff so well and make it so fast that an increased capacity of these motor car plants will not be necessary. Two hundred automobile engineers, hundreds of the best foremen in the factories, and thousands of the best workmen have enlisted in the service to help Uncle Sam in this fight.

We very well appreciate this war on the other side to be a war of motors. And if what great students, you might say, say is true, that the war is going to be won in the air, then I want to say to you that the automobile industry is going to aid greatly in that result through the production in quantity of the great Liberty motor.

Liberty Engine Best Ever Built

When they went to making the Liberty motor it was pretty well agreed they would not say anything about it until it was completed, and not after that until they had quantities of them. *But there came about that deadly, despicable, slimy, spiny system of German propaganda in this country, where they said, "I HEAR THE LIBERTY MOTOR IS NO GOOD. THEY TELL ME IT IS OVER-WEIGHT. I UNDERSTAND IT DOES NOT COME UP WITH THE HORSEPOWER THEY EXPECTED," and the men in charge of the production found it necessary to make statements.* Those statements indicate that *THE LIBERTY MOTOR IS THE GREATEST AUTOMOBILE MOTOR OR AVIATION MOTOR THAT WAS EVER BUILT.*

It will interest you men to know that the English claim it is a better motor than the Rolls-Royce, and that is going some. *The Liberty motor supplies a horsepower for every two pounds of weight, which has never been done by any other motor in the world before.*

When they talked about making airplanes, these great factories went to work making them, and when they were short of spruce, they commandeered all the spruce in the West. That new spruce would take a year and a half to get in proper shape. It would interest you to

(Continued on Page 35)

REILLY TELLS ABOUT THE INDUSTRY'S *Acres of Diamonds*

By Ray W. Sherman

REILLY and Tommy Trumbull came out of the Hansom Hotel in Sayanna, where the Sennett Motor Car Co. had just staged one of those numerous dealers' dinners that are a prime function during the show season.

"Pretty dry affair, I'll say," declared Tommy, as he chucked his overcoat into position on his shoulders and lighted a cigar, which tasted better in the purer outdoor air.

"Dry is right!" agreed Reilly. "Why they ever stage such affairs is beyond me. They're punk!"

"Let's walk around the block and air off," suggested Reilly's sales manager, and the two poked slowly down the street and around the corner.

"Tommy," asked the Sennett dealer from Callawassa, "do you remember that book 'Acres of Diamonds,' that I gave you for Christmas?"

"Yes," said Tommy, "it was a bird. It made me think."

"Well, it seems to me," suggested Reilly, "that a lot of the people in this industry are kicking bushels of diamonds around under their feet all the time and they never see them."

"Yes?"

"Now, here are these dealer dinners at the shows. I've been to great squads of them, and most of them have been a lot like the one we just came out of. Dry! Uninteresting! Bore-some!"

"They are tiring," asserted Tommy.

"At every show each factory has a large number of its dealers together at one time. It has become the custom to have dealer dinners, so each factory has such an affair. Years and years ago in the old joy-ride days of the industry these affairs were real joy parties. But eventually the joy element was eliminated and the dinners continued as before, except that the boisterous part was taken out of them.

"It is also the custom to have the factory officials speak, so the man in charge makes up a program of officials and each one gets up and says his little say and that ends the parade. Generally by the time the last man has spooched his speech everybody is anxious to get out and has lost all the enthusiasm he may have possessed when the dinner began. The dealers have too much respect for the speakers to leave before the parade is over, so they sit and sit and sit—and that's about all.

"And now here's where the acres of

diamonds thing comes in. The factories all want better dealers, the dealers all want better salesmen, the salesmen all want to make more money. Everybody is keen and anxious for better things—but the big opportunity for getting the stuff across is passed up completely. Once in a while there is a dinner that is a dandy, but they are few and far between."

"Very far between," said Tommy.

"In the acres of diamonds story the old Indian left his farm and searched all over the world for diamonds and the man who took over the farm found millions of dollars' worth of diamonds in the old man's backyard. That's what I

IF THE SHOE FITS—

"It seems to me," suggested Reilly, "that a lot of people in this industry are kicking bushels of diamonds around under their feet all the time and they never see them."

maintain is happening in this industry. We are walking on the diamonds we are seeking for.

"One point I want to make is this: Even if the program is to be made up of a string of factory officials there should be some rehearsal beforehand. Any man who has something to say should be schooled in how to say it. If he is a dry, drawling talker the manager of the affair should speed him up before the troupe ever leaves the factory. And if the speaker isn't interesting he should be limited in time—and when the time is up the manager should make him sit down. No man should be let to kill a meeting merely because he likes to talk, or thinks he ought to talk about so long no matter how little he has to say.

"And there shouldn't be too many speakers. The manager should determine what the big message is that should be got across to the dealers, and the meeting should be confined to that message. If the president of the company were a rotten speaker I'd limit him to three

minutes. That would be long enough.

"So much for the usual affair where the speakers are the factory officials. But now here comes in the real diamonds part of the proposition. As long as the factory wants better dealers who can sell more cars, why not make the dinner such that the dealers will get a message that will make them better car sellers?"

"Why not have some one get up and tell them exactly how they can sell more cars? Let some one give a real sales talk. Let another man talk as long as he can be interesting on accounting methods and how to take the leaks out of business. Some of the best dealers in the business to-day don't know that they

can increase sales at a minimum of expense by charting the owners in their town on a city map and planting promotion cars in territories where they now have no cars. One car always sells another, if the car is any good, and yet this simple point is not always taken advantage of.

"Also, this year many dealers are in real need of some backbone. They think the industry has gone to hell entirely. They believe people are not going to buy cars—and as long as the dealers believe that they won't sell any cars. They are not sold themselves on the necessity for the expansion of industry and the spending of money. Why not, then, have some one give them a real

set of reasons as to why every man who has the money should buy a car and why every dealer should help solve the country's transportation problem by selling all the cars he can? It will put another aspect on things and will make the dealer realize the opportunities he may be letting slip by him.

"And dealers should hold meetings of this same kind. Instead of lamenting the fact that they need better salesmen they should be MAKING better salesmen.

"And salesmen lament because they don't make more money. Instead of lamenting they should be seeking out the best sales methods and putting them to work.

"Tommy, exclaimed Reilly, we've got to come to it. The weak sisters are greasing the slides for themselves. The industry has got to cut out drifting."

"Well," yawned Tommy, "who's going to begin? And when—and where—and how—and what? Let's go to bed. I'm all in."

Winter Business

Results
Follow
Persistent
Efforts

Concentrate!

THIS short talk applies to Winter Business, because that is what we are driving for now. It applies all the year round, though.

When you go after new business concentrate on some one thing. Avoid confusing a prospect by showing him so much at once that he cannot decide on any one thing.

Take one line of talk and concentrate on that. Don't put all your goods in the show window. Any one thing is conspicuous when it stands alone. Nearly anything, however worth looking at, is lost in a crowd. A mass of detail is fatal to clear understanding.

Therefore, pick out the point you want to make and feature it. The rest of the picture does not count.

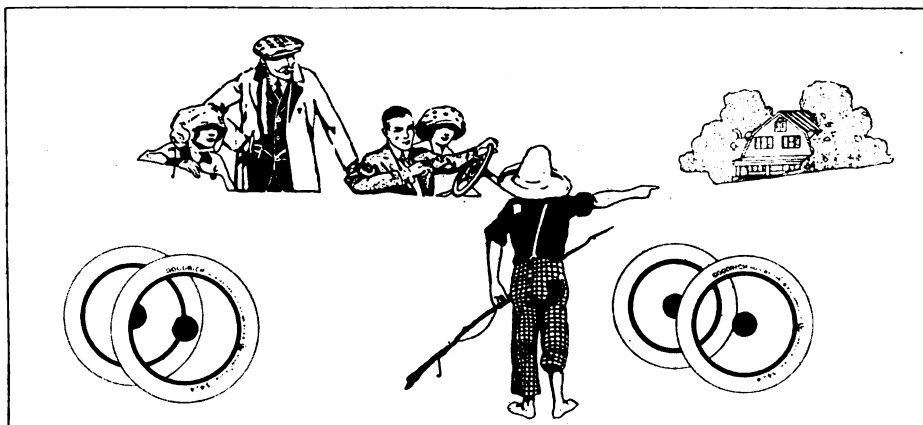
Here is the way Goodrich does it. You are familiar with this letterhead. Perhaps you use it. But have you stopped to think just what it means? There's a reason always and this cut and similar ones would not have been kept before the public all this time without good cause.

You can't draw a car without indicating some kind of car or combining the features of several cars. In either case some of the attention is drawn to the car. Does Goodrich care for the cars? Not in the least. The tire is the point here.

All cars look alike to the tire manufacturer so long as they use his tires. He doesn't want attention distracted by any feature of the car. Then why picture such features? Good—leave them out. Leave the whole car out. The tires stand by themselves and you can't think of anything but tires when you see their advertisement.

This is an object lesson. It applies equally to your advertising, your letters and your talks. Leave out the non-essentials. Fix your own eyes on what you want your prospect to see and **MAKE HIM SEE IT.**

This picture shows nothing but the essentials. Do your letters and your talks go to the point like this?



Start the Tractor Drive Now

SOME weeks ago we suggested specializing on tractors and commercial vehicles. Every day convinces us that too much cannot be done along this line.

So here is a bit more on the same subject—especially tractors. There has never been such a demand for tractors as there will be this spring. And next year it will be greater still.

Remember that the farmer has the money. He has made more than he ever did in his life. He has done this in spite of old-fashioned methods in most cases, and he is willing and anxious to improve his methods.

BUT HE MUST BE SHOWN. He has used horses because the horse is an inherited habit. He has not realized that it is a highly wasteful habit. But he is open to reason.

SHOW HIM.

And first prepare yourself. See that you have all your talking points at your tongue's end, ready at an instant's warning.

Remember, too, that there are two sides to your problem. You must also know a lot about farming.

As to the tractor first. Look over the whole field. Decide after careful investi-

gation which is the best for **YOU** and for **YOUR PROSPECTS**. When you have decided get the agency and then everlastingly boost **YOUR** tractor.

Remember, you **KNOW** it is the best one for the purpose or you would not have selected it. Very well, then. Make the farmer understand **WHY** it is necessary to him.

Here is where the farm study comes in. Study the nature of the country. Know the character of the soil—what crops are raised, and why. And are these always best adapted to soil and market, or are they the result of habit—like the horse?

Now—and this means **NOW**—spring is coming. Take your knowledge in one hand and your tractor in the other and **GO AFTER THAT FARMER!**

Write to him—every one of him. Take a tractor along and show him on his own land. When you get his permission to plow an acre or two of his land—free of cost to him—make a field day of the occasion and gather the neighbors in.

Seeing is believing, and believing is the first step toward accepting. The game is in your hands then. Don't let the interest lag.

And don't waste any time. You will never have a better chance than **NOW**.

A Timely Truck Letter

Editor Motor World: The railroads are loaded with traffic, especially at the terminals. Local traffic is not profitable. The railroads do not want it, a very natural reason for delaying it. Every transportation man knows the truck has it all over the railroads for the 50- to 75-mile haul.

Railroads are, therefore, encouraging the use of motor trucks for short haul transportation. This powerful influence is bound to increase the demand for the power wagon.

Then again there is an economic reason that is sure to become a factor of importance. Railroads must have an increase in rates. The commission knows

**Has Winter
Business
Helped You?**

How?

When?

Tell Us.

this, and it will—in time—be granted. The higher the freight rate, the more it tells in favor of the motor truck.

Merchants no longer doubt the efficiency of the power wagon as compared to horse power, but much is still to be learned as to the *kind* of power vehicle best adapted to their individual use.

The "Higrade One-Ton Cord Pneumatic" has been designed to give certain range of service, at the lowest possible cost per ton mile, not only for operating expense but for up-keep—tire and metal replacements—and to eliminate, so far as possible, field service expense. Trucks will not be easy to get while the war lasts. It is none too soon to place orders for spring delivery. —The Higrade Motors Co., J. E. Pratt, President.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

When You Teach Driving

Editor Motor World: Who is responsible in the following case? The purchaser has taken possession of his car and has been taught to drive. He requests that his wife also be taught to drive. While she is at the wheel, and our instructor sitting beside her, she suddenly turns the car into the side of a car passing from the opposite direction. —J. C.

Answer—If a dealer undertakes to teach a buyer to drive and an accident occurs while the dealer is in control of the car he is usually liable.

If a dealer teaches a person as the agent or employee of the owner, that is another matter and the owner is liable.

The facts in each case and where suit is brought the impression the witnesses make on the jury are determining factors.

In a case like the above the dealer is justified in denying liability and should win out.

Debtor Entered Army

Editor Motor World: One of our customers owed us \$50 for labor on his car and gave us his note for this amount. The note is now past due. Our customer, who is a doctor, has entered the service of the government, and when he left town left his car with us to be sold. The day the car was left with us the sheriff attached it for the cost in a lawsuit which had been unpaid. The same day we took out an attachment to protect ourselves. Please advise if ours is not the preferred claim and if it is not payable before the other.—Dickinson Bros. Motor Co., Glasgow, Ky.

Answer—When property is attached the first attachment usually has priority over the others.

As there seems to be no statutory garageman's lien law in your state, you have no preference on that ground.

Wisconsin Law Unchanged

Editor Motor World: In your Sept. 12 issue of Motor World you published the law regarding the lighting requirements on automobiles in all the states. We have found this very useful in the past and are just now interested in the Wisconsin state law.

One of our jobbers in Wisconsin stated that it was rumored that the legislature was planning to prohibit the use of spot-

lights on automobiles. If you have any further data since the publication of the above mentioned article on the law we would thank you to advise us in the matter.—F. W. Wakefield Brass Co., Vermilion, Ohio.

Answer—The legislatures of Georgia, Kentucky, Louisiana, Maryland, Massachusetts, New Jersey, Rhode Island, Virginia and South Carolina are the only ones which convene this year.

The Wisconsin lighting laws will therefore remain the same for another year at least.

Lien Law in Missouri

Editor Motor World: I would like to know fully the law in Missouri regarding a lien which a garageman has upon a person's car for services rendered for parts, gasoline, oil, storage or labor, and whether or no the car may be held as storage for same, and if after you have let the car go out of your possession you can get it again and hold it. Also is it necessary to have a written order from the car owner, or is a verbal order sufficient?—Republic Garage, Republic, Mo.

Answer—A mechanic has a common law lien in Missouri on chattels which have been improved by his labor and may keep them in his possession until paid.

There is no statute giving a garageman a lien and so it does not apply to the furnishing of gasoline, oil or storage.

When you let the property go you lose your lien. A written order is unnecessary.

Renting Private Garages

Editor Motor World: I should be glad to know what responsibility, if any, the owner of a private garage assumes if he rents space for another car in the garage with his own as to loss sustained by the owner of the other car by fire or theft, if that should occur. What notice, if any, should be given by the owner of the garage to relieve him of responsibility for loss in such a case?—A Subscriber.

Answer—Persons renting space for the storage of cars either in public garages or in private garages are not insurers of property left in their care.

In view of that fact they are not responsible for damage through loss by fire (nor for loss caused by theft for the law is the same as regards thefts) unless the garage owner has failed to use

ordinary care in preserving the property left in his charge.

Ordinary care is always defined by the courts to mean the care that a reasonably prudent man would take of his own property under the circumstances.

Prove Misrepresentation

Editor Motor World: What is the proper procedure in the following case?

Early last summer the Co. here bought four tires from the and paid for them on delivery. The first tire blew out at 12 miles, the second at about 20 miles and the third went at 30 miles. The fourth popped open on the spare rim on the side of the car without ever being put on a wheel. These tires were not guaranteed for any particular mileage, but the order was solicited and obtained through the United States mails, and it seems as though there should be some redress. When I was at the show I saw these tires on sale with the, whose address is the same as that of the company from whom these defective tires were purchased.—D. E. Seymour, Schaghticoke, N. Y.

Answer—In the absence of fraudulent representations on the part of the tire manufacturer in its advertising matter or in its catalog, the postal authorities will probably be unable to afford you any redress.

You do not state whether any promises or assurances were made you either before you bought the tires or at the time you bought them. If you feel aggrieved there is no reason why you should not make a complaint to the postal authorities.

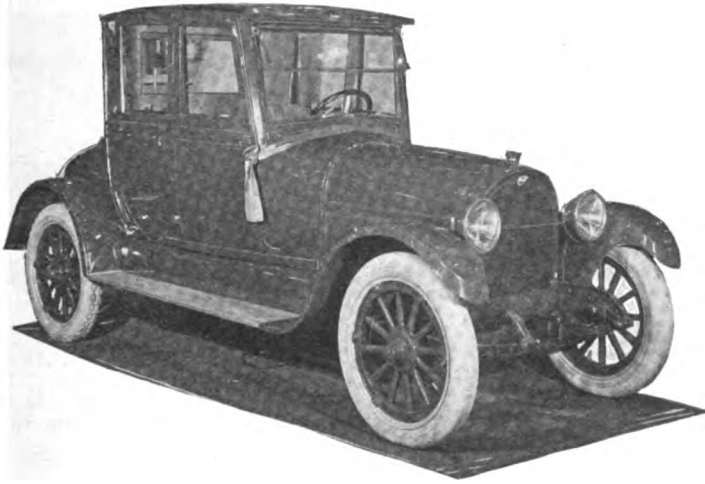
Lien for Injuries Possible

That a state legislature may give a lien upon an automobile for injuries caused by it which is superior to a chattel mortgage made after the passage of the act, but before the injury is done, and which shall be valid against the owner although the car was in the possession of a stranger at the time of the accident, is a recent novel decision.

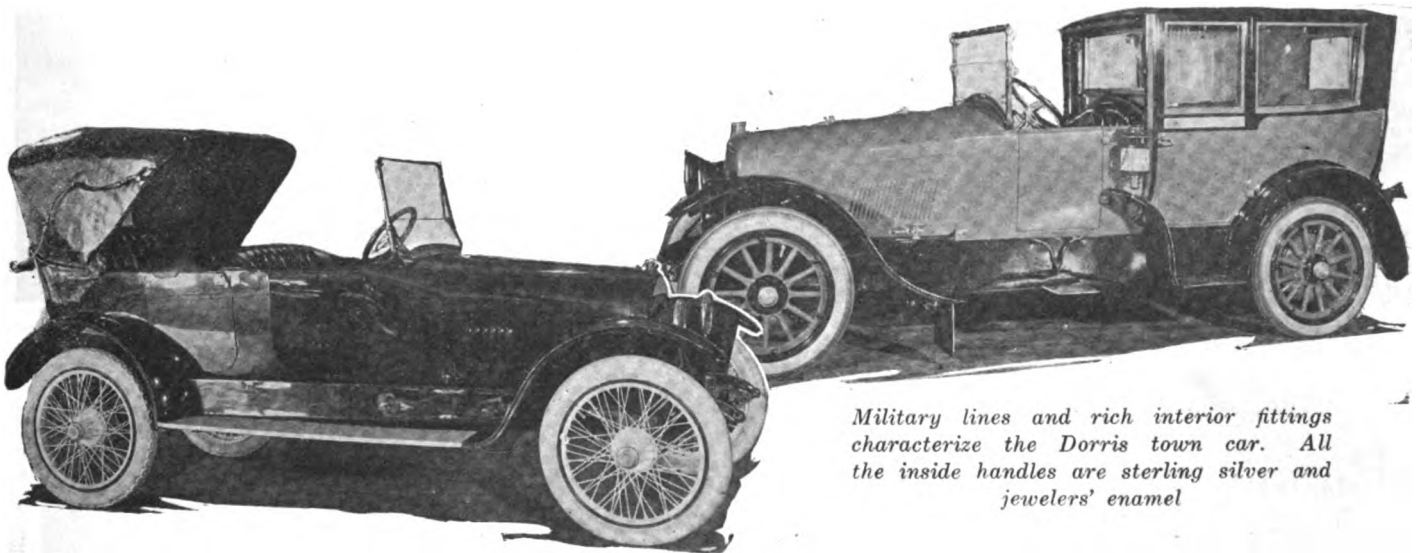
There has been only one other case decided similar to this one, and that was in Tennessee, where the court held that a lien given for damages caused by injuries from an automobile was valid. The Tennessee court, however, did not decide that such a lien came ahead of other liens.

New Body Styles, Varied to Suit Every Purpose

Originality and Ingenuity Evident in Both Open and Closed Car Designs

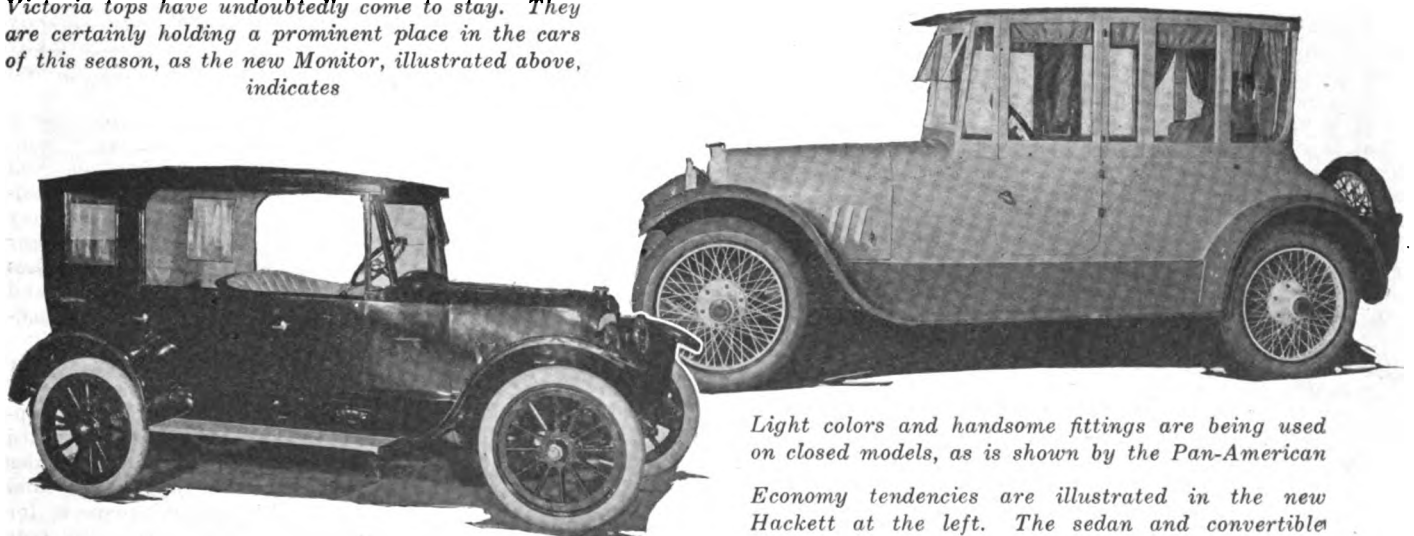


Reo offers a coupe which is both smart and conservative, an ideal car for shopping or evening use in the city



Military lines and rich interior fittings characterize the Dorris town car. All the inside handles are sterling silver and jewelers' enamel

Victoria tops have undoubtedly come to stay. They are certainly holding a prominent place in the cars of this season, as the new Monitor, illustrated above, indicates



Light colors and handsome fittings are being used on closed models, as is shown by the Pan-American

Economy tendencies are illustrated in the new Hackett at the left. The sedan and convertible types are coming more and more into use



New York City's second show this year was no less complete than the first and catered to a section which is rapidly assuming important proportions insofar as the motor car and truck fields are concerned

Bronx Dealers Give New York Its Second Show

NEW YORK CITY has had its second show this year. The Bronx automobile show held last week at the Second Field Artillery Armory, 166th Street, was the direct result of the steady growth of the motor business in that important section.

This was the first show promoted by the Bronx Automobile Dealers' Assn. and sales of both cars and trucks exceeded the most optimistic expectations. Arrangements have already been made to make the show a regular yearly feature. It will doubtless include in the future, as it did this year, the Westchester County show, which was abandoned on account of the war.

The show occupied the drill hall of the Armory, a space of about 40,000 sq. ft., attractively decorated and well laid out. There were forty-eight exhibitors who showed among them practically all the latest models, including some that missed the New York show because of railroad congestion.

There was an excellent exhibit of trucks, semi-trailers, delivery cars and other commercial vehicles. This class of business is growing rapidly in the Bronx as elsewhere, and was especially featured accordingly.

The Bronx district forms a connecting link between Manhattan and the northern part of the state and all New England. It is traversed by two motor highways, one of which must be used by all passenger and commercial cars coming into the city or leaving it for all points east.

The borough itself has a population of 800,000 and Bronx dealers' territory usually covers all Westchester County and frequently a greater area.

From a motor vehicle standpoint the county is assuming larger proportions daily and a goodly percentage of the city's 175,000 cars and trucks are owned in the Bronx. During the past year a thriving and growing motor row has developed along the Concourse. Practically

every car and commercial vehicle is shown there, and Bronx dealers believe that they can and should serve not only their own public but also very many passing tourists. They are certainly well equipped to do this.

The show was held at this time for a specific reason. The association is conducting a campaign of education and demonstration to convince Bronx residents that both new cars and service may be had at home. Many of the larger manufacturers have established branches and agencies there with modern and efficient service stations and their business is rapidly increasing.

The success of this first Bronx show has emphasized the optimistic feeling of dealers in the section. Without exception they are confidently looking forward to the best year in their history. Sales at the show exceeded expectations and dealers report the best of prospects for future business. This is especially true of commercial vehicles.

There was some difference of opinion as to the wisdom of holding a show in the face of the present war conditions and some opposition developed at the early conferences. This was successfully overcome, however, and the most enthusiastic members of the association now are those whose early conservative council was overruled. They are now a unit, pledged to a policy of an aggressive and confident spring drive for new business. The exhibitors were:

Cars, Trucks and Accessories

Bowman, E. H. Kelly-Springeld and Stewart
Bowman, Sidney B., Auto Co.Oakland
Bowman & Meyer.....Reo
Bronx County Auto Co.

Fords and attachments

Buick Motor Co.Buick
Champion Spark Plug Co.Spark plugs
Commerce & Collier Cos.

Commerce & Collier trucks

Concourse Motor Car Co.Chandler
Cutting Larson Co.Oldsmobile
Durham, P. C., Co., Inc.Accessories
Eastern Trallmobile Co.Ford attachments
Elsey, John B., Inc.Dodge
Fletcher Carburetor Co.

Willard storage batteries

Fordham Service Station....Willard battery
Fordham Auto Sales Co.

Liberty and Chevrolet

Gill Piston Co., Inc.Piston rings

Graham Bros.Three-In-One-Unit
Higgins, A. J.Nash
Hudson Motor Car Co.Hudson
King Car Cor.King
Lexington Motor Co.Lexington
Mager, C.Acme trucks
Martin, Jas.Tires, tubes and accessories
Moller, Wm.Hupmobile
Mott Haven Garage Co.Gould battery
Mulford Hass Co., Inc.,
 Heinze Springeld starter, Pasco wire
 Wheel and accessories.

National Auto Truck Co.

Denby, and Smith Form-A-Truck

Paige Co. of Bronx.Paige
Parkinson, Wm., Motor Sales Co.Stutz
Premo Auto Top Co.Tops
R. B. V. Motor Sales Co.

Maxwell and Chalmers

Radcliffe, C. R.National
Ranney, Elliot & Co.Daniels
Sewell Cushion Wheel Co.Wheels
Simons Mfg. Co.Body polish
Triangle Motor Truck Co.Triangle truck
Union Truck Mfg. Co.

Tri-Ton Trailers, Woonsocket Body, Mar-
tin Rocking Fifth Wheel, Union Trans-
mission.

W. J. B. Motor Truck Co.Republic
Van Cortlandt Vehicle Co.Peerless
Waltermyre, Homer.Gramm-Bernstein
White Bros.Fords
Willys-Overland, Inc.

Overlands, Willys-Knight

Wood, Henry H., Inc.Flag

Boston Show May Not Have Closed Day

BOSTON, Feb. 17—The Boston motor dealers are beginning to feel that they used good judgment in not postponing the motor show here, as it looks now as if there will be no closing on Monday as in Chicago. From the latest reports at Washington the end of the Monday holidays will be just before the show here. Because of the big demand for space Horticultural Hall will have to be used as an overflow again this year, and the space for that place is nearly all gone now.

Watertown Is Organized

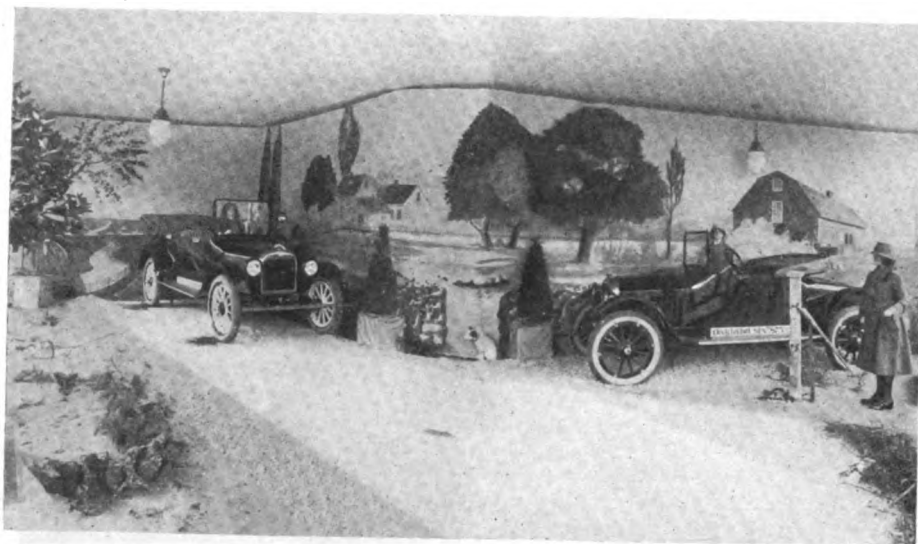
WATERTOWN, S. D., Feb. 17—The Watertown Automobile Trade Association has been organized and will affiliate with the National Automobile Dealers' Association. The officers are Isidor Hanten, president (Reo); W. H. Welch, vice-president, manager of the Welch Auto Co. (Franklin, Maxwell and Velie); C. A. Hinkley, secretary (Studebaker and Packard), and E. E. Campbell, treasurer, proprietor of the Campbell garage (Saxon). Besides these officers there are two directors: B. O. Wolf, of the Wolf Auto Co. (Chevrolet), and Frank McDermott, manager of the Overland branch.



This view gives some idea of the well-laid-out show put on by the Bronx Automobile Dealers' Association. Aisles were broad, one good feature being the dividing line down through the center of the hall

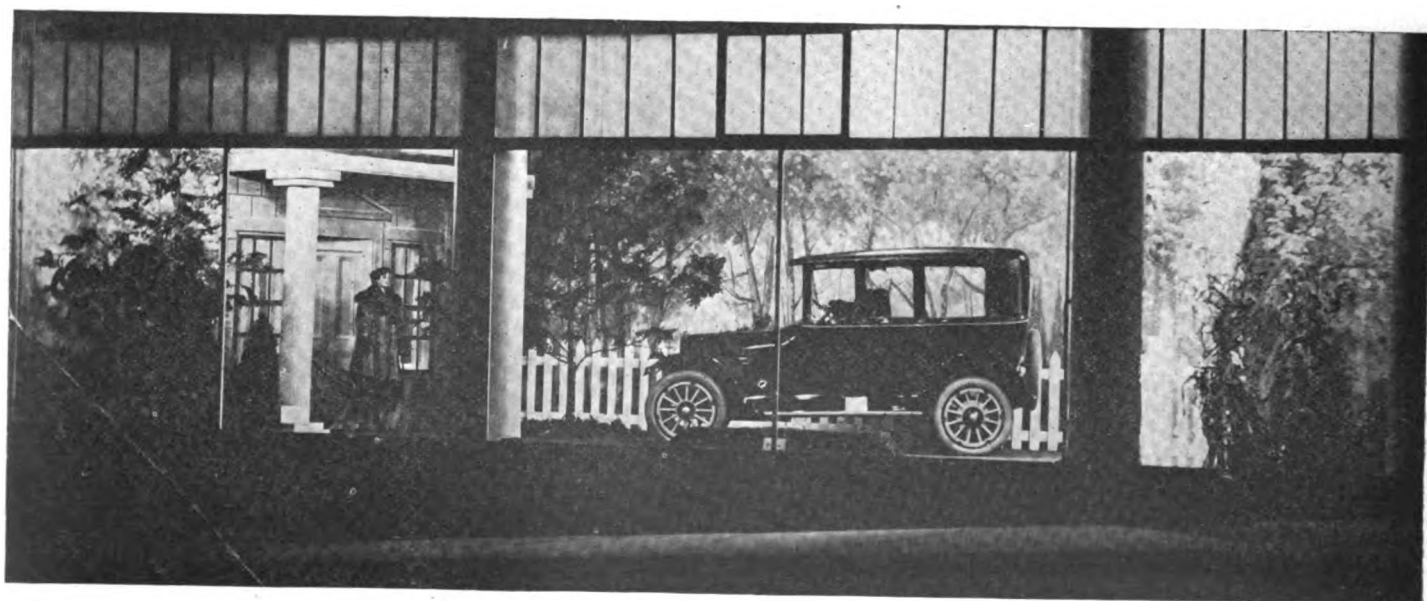
Look at These!

THE window at the right was shown in the Washington, D. C., branch of the Firestone company some time ago, but it is a display that will be just as good ten years from now as it is to-day—provided we don't wilt and let the kaiser get us. In the latter case we would have to take down that American banner and stick up the standard we all hate, and as for bumper crops—there wouldn't be any such animal. And that big picture of the Firestone plant! Wouldn't that outfit make fine picking for old Kaiser Bill! Do you wonder he is trying so hard to get his fingers on the old U. S. A.?



THE scenic effect at the center of the page is by the Central Michigan Oakland Co., Bay City, Mich. Isn't it a beaut? These things can't be made for four bits, but they are worth while. A window that is filled with snappy ideas like this the year around brings customers, and one customer pays for a lot of windows

AT the bottom of the page is a window from Hartford, Conn. It was taken at night—as all window pictures should be taken. A good window picture can't be made in the day-time. Try some of these ideas. Then take a picture at night and send it to
Motor World



Lapeer Tractor Truck Includes Two-Wheeled Trailer

**Turns Around in Its Own Length
—Various Types of Trailers of
2 to 5-Ton Capacity Are Made**

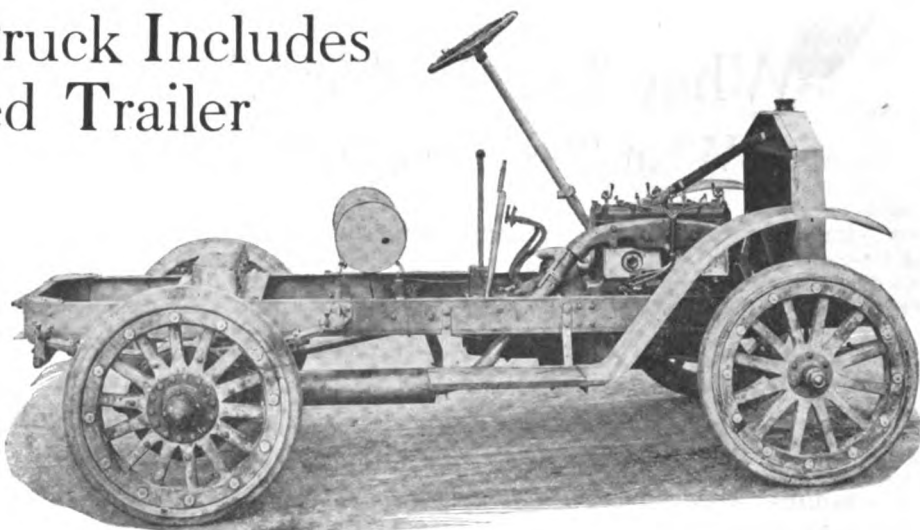
EFFICIENCY and economy in motor truck operation have been sought in the introduction of the Lapeer tractor truck, made by the Lapeer Tractor-Truck Co., Lapeer, Mich. The outfit is composed of two units, the tractor that does the hauling and the trailer, which carries the load. Any sort of trailer can be furnished, in any capacity from 1 to 5 tons. Also any kind of body can be fitted—dump bodies for coal, sand, etc.; stake bodies for lumber and underslung bodies for bulky articles or machinery.

The trailer can be attached or detached in a minute without the aid of an extra man. The trailer is fitted with rollers that run over an inclined track on the tractor. Further, the trailer has a standard that drops to the ground and keeps the body level when it is detached from the other unit. When coupling, the tractor is backed to the trailer, the rollers meet the inclined track and the tractor is then backed under the trailer until the coupling hits the top. One pin is then inserted and the two units are intact. Both the draw bar and turntable connections are through coil springs that take up the stress and strain when starting or stopping.

Easily Handled

It is to traffic driving that the Lapeer tractor truck especially lends itself, it is said, due to the fact that it can be turned around in its own length, can turn sharp corners in crowded streets or be backed up to the curb with the tractor unit at right angles to the trailer in much the same manner as a team of horses is placed when a teamster backs up to a curb.

Inspection of the chassis reveals such standard units as the Torbensen rear axle, Fuller transmission and Waukesha



Chassis of tractor showing short wheelbase and unit power plant

engine. Carburetion is effected by a Stewart carburetor and the ignition is taken care of by a Splittorf-Dixie magneto. The standard trailer chassis is designed to take a body 6 by 12 ft. The wheelbase of the tractor is 90 in. and the tread standard. The engine, having a bore and stroke of $3\frac{1}{2}$ by $5\frac{1}{4}$ in. respectively, is three point suspended and fitted with a built-in governor. Lubrication is by pump and splash. Cooling is by centrifugal pump, radiator and fan. In unit with the engine is a dry plate, multiple disk clutch, and the transmission is three-speed selective type. The weight of the tractor unit is 3050 lb.

The tractor has a comfortable cab which affords protection to the driver and is equipped with a ventilating rain-vision windshield. The windows in the doors can be lowered and for summer driving the doors themselves can be readily detached. Standard finish is carried out in a lead color.

The equipment of the tractor truck includes besides the driver's cab, tools, oil, side and tail lamps, jack and horn. The 2-ton Lapeer tractor and trailer, without trailer body, sells for \$1,800, the $3\frac{1}{2}$ -ton for \$1,900 and the 5-ton for \$2,000. Extra trailers can be had at an additional cost of \$400 for the 2-3 ton size and \$500 for the larger sized tractor.

Grand Rapids Defines Gasoline

GRAND RAPIDS, Feb. 17—The Grand Rapids Business Association, of which E. T. Conlon is secretary, has succeeded in having passed by the City Commission a regulation defining gasoline and setting a standard grade which is to be sold throughout the city. The regulation defines gasoline as "a liquid hydrocarbon, obtained by straight distillation or by the cracking process, or by blending of the two, whose end point, or boiling temperature, shall not exceed 450 deg. Fahr., and shall distill over not less than 20 per cent at 220 deg. Fahr., and not less than 50 per cent at 300 deg. Fahr.," by a test which is prescribed. Such standard gasoline cannot be mixed with any other and there is a penalty for selling gasoline as "Grand Rapids Standard Gasoline" unless it fulfills the requirements. Another clause makes it a violation of the ordinance to permit accumulations of dirt and water in tanks. Dealers must be licensed to sell this gasoline at a cost of \$2 a year.

Charging Stations Listed

NEW YORK, Feb. 18—The New York Edison Co., through the Automobile Bureau, is distributing the 1918 edition of a booklet containing a list of charging stations in New York and the suburbs. In addition, it describes a route to Atlantic City suitable for electric vehicles. Several new charging stations are listed, as well as current boosting rates.

Wright Heads Winnipeg Dealers

WINNIPEG, Feb. 18—D. J. Wright was elected president of the Winnipeg Motor Trades Association at the annual meeting held last week. Other officers elected were: Vice-president, R. McKenzie; secretary-treasurer, G. C. Emmett. Executive committee—Car dealers' section, W. F. Dayton, T. G. Breen, A. R. Leonard, A. Maw; tires and accessories section, M. Ert, C. F. Young, R. McKinnon. Legislative committee, W. D. Dayton, C. P. Anderson, A. R. Leonard.



Tractor and trailer, showing roller arrangement supporting the front end of the trailer

What the Motor Car Means to Texas

What Texas Means to the Motor Car Industry

GREAT distances and large agricultural area have made the car one of the most essential articles in the Southwest. Army cantonments would have been impossible without cars. Texas could not continue to progress without its cars. The facts that follow are from a paper read by C. E. Scott, of the Spencer-Carroll Co., Waco, Tex., at the recent meeting in New York of the National Association of Automobile Accessory Jobbers. Mr. Scott is intimately familiar with the territory about which he writes.

IN speaking of the development of the automobile industry in the Far Southwest, I am assuming that the territory referred to as the "Far Southwest" is synonymous with Texas, and I shall accordingly confine my observations to that particular section. To attempt to do more, might, I am afraid, land me in the same position of the well-known and oft-referred-to gentleman who took in too much territory in his opening remarks.

It is indeed a pleasure, and no less a privilege, to address you on the subject of the development of the automobile industry in Texas, for it is only another opportunity to speak to you on the development of the state as a whole, for unquestionably the automobile is responsible to a large degree for the wonderful growth during the last few years.

Like all native Texans, there is already in my mind a desire to confuse and confound the inquirer with the magnitude of our state, its tremendous resources and its wonderful possibilities. In the gentle art of boosting there are no slackers among us.

How Big Is Texas?

But I will try to be brief and, if not as entertaining, I sincerely trust it will at least be of passing interest.

Roughly speaking, the length of the State of Texas is approximately 800 miles, about the distance from New York to Indianapolis. From east to west is approximately 750 miles, about the distance from Chicago to Jackson, Miss. Its population in 1900, when the automobile began to come into notice, was about 3,000,000, while its present population is about 4,500,000. However, as the total area is approximately 266,000 square miles, there is ample room for more.

Texas in the past, perhaps, has been regarded as a cattle raising State, and while this industry has produced a certain amount of wealth the tremendous agricultural resources have been respon-

By C. E. Scott

sible for the rapid strides made by this section during the last few years.

The State held first place among the States in the value of agricultural products in 1915 and 1916, and only dropped into second place in 1917 by reason of the droughty conditions existing in practically every section. Notwithstanding this, the value of the 1917 crops was nearly \$105,000,000 greater than the 1916 output.

That the era of prosperity has been of vast benefit to the automobile industry is shown by the sale of cars. At the close of 1914 the number of cars in Texas was approximately 70,000. At the close of 1917 the number was 196,000, as shown by the records of the State Highway Department. In other words, nearly twice as many cars were sold in Texas during the past two years as were sold during the entire period that the automobile was on the market up to 1915.

Rural People Buying the Cars

In analyzing the distribution of the cars owned and the population, it is of note that the large increase in cars owned is not confined to the cities, but in nearly every instance is in the rural districts and in counties having no towns with a population greater than 5000.

Some of the reasons for the rapid development of the industry in this section are perhaps due to the facts already noted, viz.: The large area of the State, the fact that it is an agricultural district, and, relatively speaking, the fact that it is sparsely settled.

The last census report showed in the State only four cities with a population of 50,000 and over, only nine with 15,000 or more, and but 39 with 5000 or more. Indeed, about 76 per cent of the population lives in the rural communities and in towns of less than 2500. Add to this the mild climatic conditions, the absence of rainy seasons and the splen-

did roads, both natural and improved, and it is easy to understand the reason for the ready adoption of the automobile.

There has been very little railroad construction in the State during the past ten years, and the transportation needs, following the increased population and development, have depended to a very great degree on the automobile. For us it is a necessity and reference to it as a pleasure vehicle is indeed a misnomer.

It is, strictly speaking, a commercial vehicle, whether designed for the transportation of our farmers, or for the commodities produced by them. For, let me repeat, the greatest increase of sales of automobiles has been in those districts devoted wholly to agricultural pursuits.

Without the automobile the rapid construction and occupation of the army cantonments would not have been possible. And certainly they could not now be maintained without the automobile to solve the transportation problem of both men and supplies. No street car system in any of the cities where the cantonments are located can be expected to expand sufficiently to take care of the increased transportation needs.

The automobile industry has been directly responsible for the development of our roads. The last legislature created a highway commission, with all the appurtenances, for the further development of the roads which has heretofore been carried on by the various counties, each working independently of the other and with no common plan as an objective.

Highway System Planned

Since the creation of the commission, through its energetic handling of the situation, a system of highways for the entire State has been planned, Federal aid taken advantage of under existing Federal laws, and a tremendous amount of preliminary work has been accomplished so that Texas can soon boast of a highway system second to none.

There are at present in the State a total of approximately 133,000 miles of public roads, of which about 13,000 miles have been surfaced. Of the public roads, 12,500 miles have been designated as State highways, a system of trunk lines they might be called, traversing the State from east to west and from north to south. Under the present allotment \$2,923,289 will be available up to July 1, 1920, from the Federal grant for the improvement of the State roads.

To follow in detail the progress of the automobile dealer and the garage owners in Texas would, I am sure, only be a recital of facts familiar to all of you, for the development in our case has been along identical lines with the development in your various sections.

Beginning with a few pioneers who recognized the industry as a business easily to be followed and developed, along with myriads of others who embarked in the venture as a side issue, a

novelty—or for the simple reason that they had tried every other line and failed—the trade has gradually developed until it is looked upon as one of the most staple lines.

It is not so very long ago that the bankers refused absolutely to finance or assist in financing a business handling automobiles, but that time has passed and to-day the automobile dealer, as well as the supply man, does business with the banks on the same basis as the business men in older established lines. Even the adventurous spirit who wants to take a whirl at Fords can secure ample backing.

The dealers have been slow to follow any plan of State-wide organization, but local organizations now exist in practically all of the centers where there are any number of dealers, and a State organization was formed last year which is sure to grow and result in great benefit to the dealers at large.

And in passing I want to say that it

has been my observation that the effects of the trade journals have been particularly effective in their campaigns of education among the dealers.

Our people have met the demands of the present situation in a cheerful and patriotic spirit. The dealers have subscribed generously to Liberty loans, have donated to the Red Cross and other relief work, and have assumed the burdens imposed upon them by increased taxes, demoralized transportation facilities and the loss of their men without a murmur of complaint. No businesses have been liquidated and nowhere do we find any inclination to retrench or curtail the activities of the various organizations, but rather a determination to go on with business, not as usual, perhaps, but at least keeping it going and believing that when "Johnny Comes Motoring Home," following a victorious peace, a new era of prosperity and development for the automobile industry in the great Southwest will begin.

What One Reader Thinks of Motor World



AUTOMOBILE ACCESSORIES
SUPPLIES AND REPAIRS

E. W. Covert

E. E. Tunison

Covert & Tunison

Main St.

Trumansburg, N. Y.

December 19th, 1917.

The Motor World,
N. Y. City.

Gentlemen:-

We are enclosing a notice for your paper concerning
the Cash Basis.

We have been regular subscribers to ~~xxxxxx~~ the Motor
World for several years, and have as yet, to go astray on one
suggestion made by you.

Thanking you for your kindness, we beg to remain

Very truly,

Covert & Tunison.

Per *E. E. Tunison*

Editorial Observation

The Automotive Dealer

ONE big lesson the Twin Cities show drove home is that this is the day of the automotive dealer. It is no longer the time for any dealer to have all his eggs in the same basket.

The movement has been coming slowly. Now it is coming with a rush. We know from experience that the business man who purchases a motor car for his own use is also a prospect for a motor truck for the use of his business. We know that the farmer, who is the big purchaser of motor cars, is rapidly becoming the big purchaser of motor trucks. More than ever will there be a need for tractors, what with the necessity of increasing food crops and the shortage of man power on the farm.

Is it any wonder, then, that the automotive dealer is fast assuming the importance that is his due? Nor is the movement confined to any one section of the country, nor to any one city.

Even in the largest cities, where heretofore it has been thought that a motor car business alone was a regular business, one which should absorb the entire time and energies of a dealer or distributor, we see trucks being added.

Within the past few weeks several of the largest passenger car dealers in New York, Chicago, Boston and Philadelphia added trucks to their lines.

They see in the truck not only a vehicle for freight, but a vehicle for overhead as well.

The time is going fast when a big establishment in an expensive salesroom can be made to absorb all the fixed charges of such an establishment and return a profit on the investment. There is too much time

when salesmen are doing nothing—but boosting overhead. They must have trucks to sell.

In New York, the greatest commercial center of the world—the center farthest, perhaps, from any farming interests—a tractor salesroom has been opened on Broadway.

In Chicago one dealer already has become an airplane dealer—exhibits airplanes on his salesroom floor.

In other centers on tidewater, on the lakes and rivers of the country, dealers are getting ready to merchandise detachable rowboat motors. This is getting in the thin edge of the wedge that opens the way to the motor boat field.

Dealers in our great farming communities already are selling farm lighting systems to the farmers; they are selling stationary gasoline engines for farm work. One dealer recently sold 800 such stationary gasoline engines without difficulty.

Verily, times are changing. Drug stores no longer sell drugs and physics alone. They sell pretty nearly everything in the way of stationary, camera goods, candy, fountain pens and a hundred and one other things. Why? Because the public demands such merchandise.

And just as surely the public is going to demand that the automotive dealer sell everything that gets its power from gasoline or kerosene.

Those dealers and distributors who are taking steps to fill this demand are the ones who have seen the light. Very soon we shall all have to be AUTOMOTIVE dealers.

Dead Stock

IT is unfortunate that a great number of supply dealers do not better understand the psychology of selling. "In the spring a young man's fancy lightly turns to thoughts of love," says the poet. And it also turns to thoughts of buying.

These are the days to get that dead stock out on the counter where it can be seen. To show it is enough. *It will move.*

One dealer the Motor World man talked with one day last week reached down under his counter and brought out a bundle of patent cloths for cleaning windshields. The dust of months was on the package.

"Why don't you get it up on the counter and close it out?" we asked.

"No use trying," he answered.

"Ever try it?" we suggested.

"No."

Yet this dealer is rated as a first-class A No. 1 merchandiser. But here was a bunch of dead stock, money tied up tight, with no effort being made to move it. And several salesmen lolling around with nothing on their minds but their hair.

This stock will move. **ANYTHING** will move in the spring. Display it. Let people see it. They are cleaning up their cars for the summer. They'll buy.

And if they won't buy at one price, they will at another. Slash the price. Move the goods. Get your money out of a dead investment and put it to work in a live one.

"In the spring a young man's fancy——"

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Trade Conditions Are Good

Editor Motor World: Your leading story in the issue of Feb. 6 had the real ring. If it will help some dealers to change a wishbone into a backbone it will have done the industry a big service.

What these dealers need is some agency—like yourselves—to give them concrete, definite, specific information about conditions in all parts of the country.

They must be told about the new, unprecedented prosperity of the South—the East, Central and West Southern states. The world demand for cotton, the high prices for the staple, the high prices for the labor that must sow, cultivate and gather the crop and gin it—that's the basis for the South's prosperity. The South has more money than ever before, and it is spending it.

We have heard from the Pacific Coast that in some localities used cars are selling at a premium above the list price. It seems that no matter how many cars the Coast gets this year there will be hardly enough for the demand.

In the Central West there is no bugaboo of depression—farmers and the trade that depends on farmers know that the products of the soil are the basis of real wealth. They have grown and are growing the cereals for the world, getting higher prices than ever for them—and they are putting the money into those substantial things that make farm life more livable. Motor cars, trucks, tractors and trailers get first call on the farmers' money.

In the East the fabulous increase in industrial activity has brought into the car-buying class people who before had never been considered even remote prospects. Where one or at most two members of a family had been workers it is the rule now to find in the factories every adult member of working-class families—in some cases even partial cripples are being utilized and paid for minor tasks. New York City, Bridgeport, Trenton, Paterson, Passaic, Newark, Jersey City—every manufacturing center in the East teems with proof of a vastly increased employment of labor.

The above simply indicates to us that the substantial foundation for the automobile industry's prosperity in 1918 has been laid in the firm bed of money. And that money isn't going into a sock—it's

being spent, it's being invested, put in savings banks—it's moving, and the more money that moves about in the United States this year the more surely we can finance without scrimping the nation's war needs.

These observations are made because I think the trade will be benefited by expressions of opinion, based on fact and made by men or companies who are in a favorable position to judge.

Every man in the Cassidy organization was definitely charged on Jan. 1 this year to investigate quietly and report accurately what he found in regard to trade conditions among jobbers and dealers.

I have every confidence in their reports as made to me, because it checks up closely with my own experience at the New York show, the jobbers' convention and the Chicago show. Everywhere we have found the substantial optimism that takes the enduring shape of orders.

New York showed bright prospects, but the Chicago show was a triumph as far as dealer attendance, optimism and business are concerned. What is true of us is true also of a number of manufacturers of other lines with whom we have friendly contact.

In some cases these manufacturers report January bookings six or eight times those of January, 1917. In others manufacturers of long standing content themselves with saying that they have more business on their books than ever before.

All of which indicates that the dealer has a duty to perform—he must go right out and get the business, because it's there for him.

He must show the goods in windows and on counters. He should advertise locally, both in newspapers and with direct literature. *This is the wrong year for price cutting*—it never was less necessary. It's the big year for salesmanship—which in our trade simply means showing merchandise to car owners, explaining the merits and taking the orders. Too bad there's so little of this salesmanship—but it makes it easy for the man who's willing to try.

Financially the whole situation is opening up. While not predicting the immediate close of the war, it seems that we are all getting down to a war basis and finding that we can work very comfortably and profitably with it.

Personally our company, both as ad-

vertisers and as readers of your paper, will be very much interested in getting your reports of trade conditions, and please be sure that we shall be willing to let you have the benefits of our own research from time to time.—Edw. A. Cassidy, Edw. A. Cassidy Co., New York.

Increase Motor Transportation

Editor Motor World: When some of our citizens get a good grouch on they seem always to want to take a fling at the way the war is being conducted. This type of individual either writes or says what he thinks about the whole business, and then sits back and regards himself as a patriot. Nine times out of ten he is wrong, both in what he says and in his estimate of himself.

The latest representative of this species is one who sees a great oil famine, thinks the use of automobiles should be restricted in a nation-wide effort to cut down waste, and does considerable juggling with facts. He takes a particular fling at the automobile, and refers to Paris and London as places where very few automobiles are in use because of Government action.

The gasoline situation in this country is not to be compared with that in Europe. England and France are almost entirely dependent upon imports of petroleum products, and the ability to import is limited by the lack of ships. It is for this reason that the use of motor cars for private purposes has to be suspended over there except for the most urgent requirements. America, on the contrary, is the world's largest oil producing country, and is unable to export more than one-quarter of its gasoline products.

A statement issued by the Petroleum War Service Committee indicates that it is desirable to use gasoline for power purposes to insure continuous and ample production of fuel oil for the navy. Gasoline is in the nature of a by-product of fuel oil, which is used also in merchant ships, munition factories, and other industrial plants. As gasoline cannot be stored in large quantities, because of lack of storage facilities and inability to build additional storage tanks at this time, and as it is impossible to ship more gasoline abroad than is now being forwarded to Europe, every effort should be made to utilize motor trucks and passenger automobiles for hauling merchandise and carrying passengers.

The gasoline situation, which threatened last summer to result in a shortage, has changed radically. Gasoline economy due to campaigns encouraged by the United States Bureau of Mines, the drilling of new oil wells, increased production of gasoline by the "cracking process," decreased use of automobiles during severe winter weather, and lack of shipping facilities for export to Europe have combined to cause consumption to fall below production. The reserve supply accumulating will tax storage facilities to the utmost before winter is over.—J. B. Hulett, President, Brady-Murray Motors Corp.

The RETAIL NEWS

SOUTH

G. G. Price, Cochran, Ga., and F. Ussery, Caldwell, Ga., will establish a repair shop at Cochran.

New Garages

Elton M. Adams.....Macon
Eatonton GarageEatonton, Ga.

MIDDLE WEST

The McKinnon Garage Co., Detroit, is remodeling its building.

The Eastern Motor Sales Co., Detroit, will erect a 4-story brick and reinforced concrete service station at Antietam and Russell Streets.

Fred Burtletson, Saranac, Mich., has purchased the Fix-It Garage from Mrs. Howard Lane.

J. L. Moss, 57 Winder Street, Detroit, dealer in used Denby trucks, is establishing branches in Toledo and Cleveland. Harry J. Elsey, formerly division superintendent of the Motor Mart, will be in charge at Toledo.

Beach & Foreman have opened a motor truck sales office at 811 Woodward Avenue, Detroit, where they will sell the Acason.

Ray E. Stevens, Bellevue, Mich., has bought the Bellevue Garage.

Fred A. Gardner, West Allis, Wis., has sold his garage, machine and repairshop business at 75th and National Avenue to Jacob Karth, who took possession Feb. 10.

Kuester Bros., West Bend, Wis., have improved their garage and repairshop, and added equipment.

Andrew Beck, Manitowoc, Wis., will open a tire store and service station.

George S. Burrows, Fond du Lac, Wis., is enlarging his plant and will add an accessory and supply store.

F. W. Ellenberg, of Ellenberg & Ost, Reedsburg, Wis., has bought his partner's interest and will continue the business alone.

The Sawyer Garage, Sturgeon Bay, Wis., is enlarging its repairshop and installing new tool equipment.

New Garages

City Garage.....Mt. Clemens, Mich.
Dixie Garage Service Station....Holly, Mich.
Madison Motor Car Co.....Madison
Appleton Auto Co.....Appleton
R. F. Kann.....Ashland, Wis.
Edward Dargle.....Sparta, Wis.
P. E. Roe.....Abingdon, Ill.
Walter SchadHudson, Ill.
Elie Wakefield.....Maroa, Ill.
C. H. Kreher.....Decatur, Ill.

SOUTHWEST

Pittsburg Motor Co., Pittsburg, Kan., has gone out of business.

Loether Bros., Elk City, Kan., have moved their repairshop and Central Garage to Independence.

Edward Holm and Verner Olson, Lindsay, Kan., have bought the blowout patch business of Nygren Bros. The equipment is now being moved from the factory in East Lindsay to the building occupied by the Lindsay Tire Repair Co.

Willis Motor Co., Lawrence, Kan., has opened new quarters at Tenth and Massachusetts.

Pete Britt, Kelly, Kan., has opened a repairshop.

Tom Wharton, Independence, has bought the Stanley Root Garage.

A. H. Stegeman, Wilsey, Kan., has leased the H. L. Meyer Garage and repairshop.

S. E. Neff, Wilsey, Kan., has bought the garage of L. F. Pirtle.

Benolist & Fennimore, Pittsburg, Kan., have bought the Pittsburg Motor Co.

J. O. Ferris, Junction City, Kan., has bought the interest of Otto Wenger in the Wenger & Ferris Garage.

Gage Auto Co. Garage, Minneapolis, Kan., is being improved.

R. B. Pringle, Grant City, Kan., has bought the Everett Dye Garage.

C. L. Jackson, Bonner Springs, Kan., has bought the Golden Belt Garage from J. F. Mackey.

Perkins & Reed, Peru, Kan., have leased the garage of E. H. Murphy.

Chas. H. Ward & Son, Winona, Kan., have bought the U. P. Garage from J. N. Thounvenell.

The Northrop Garage, Great Bend, will hereafter be styled the Santa Fe Trail Garage.

C. W. Anderson and W. W. Madderbach, Salina, Kan., have formed the Salina Chalmers Sales Co. and opened salesrooms.

R. C. Lawler, Girard, Kan., has opened a repairshop in connection with his automobile business.

Selle & Austin, Great Bend, have opened a repairshop at the Oldsmobile Garage.

The Universal Tire Stores Co., Atchison, has opened a branch at Junction City, Kan.

C. R. Burrows, Wellington, Kan., has sold the Har-Mar Motor Co. to M. C. Rule.

E. L. Greenleaf, Kingman, Kan., has bought the Overland Garage from J. P. Jones.

Chas. Wilcoxin, Peru, Kan., has bought the auto livery business of Perry Ellinwood.

Schaad-Zimmerman Auto Co., Little Rock, is planning improvements to its building.

Clayton Bros., Midland, Tex., have bought the Western Auto Co. from K. E. Nutt, Allen Tolbert and Chas. Kerr.

C. J. Bishop, Tulia, Tex., has bought the Tulia vulcanizing plant.

The Petty Bros. Motor Co., Hico, Tex., has opened a service station.

O. W. Hawley, Dallas, has bought the interests of E. H. Rey and W. F. Rose and has become the active partner of W. A. Fesdick in his business.

The Southwest Oakland Co., San Antonio, has moved into a new building at Commerce and St. Mary's Streets.

The Chambers Auto and Supply Co., Cameron, Tex., is planning to enlarge its present building.

E. M. Lewis, Livingston, Tex., has sold his garage to Standley Sawyer.

O. L. Phillips, Frederick, Okla., will erect a new building for his business.

The Stevens Storage Battery Co., Miami, Okla., will open a service station.

Kirk & Bronough, Milburn, Okla., have bought the garage of Williams & Collins.

J. Wenzel, Chickasha, Okla., has bought the Norge Garage.

The Broadway Garage & Sales Co., Oklahoma City, has opened a Columbia storage battery service station at its garage.

John W. Richards, Canadian, Okla., has bought the local garage.

Riley & Riley, Nowata, Okla., have increased the size of their salesroom.

Kent & Kester, Brookfield, Mo., have opened a tire and supply shop.

W. O. Wooten, Marceline, Mo., has bought the Beetler & McKinney Garage.

The Auto Devices Co., St. Louis, has opened a lens service station, where lenses will be tested and made to conform with the State law.

The Bittel-Leftwich Co., Kansas City, will move soon to its new building at 26th Street and McGee Trafficway. The building is a 3-story fireproof structure.

S. J. Walker, Mansfield, Mo., has bought the garage of Hoover, Duckworth & Strong.

The Motor Car Repair Co., Carrollton, Mo., has moved into new quarters.

Harry Knight, Molden, Mo., has bought the W. H. Liddle Garage from F. M. Maddox.

M. A. Flynn and George L. Breting, Kansas City, have moved into their new building at 3823 Broadway. This has 3 floors and 20,450 ft. of floorspace.

The Tale Garage & Motor Co., St. Louis, will have the first specially built garage in the downtown district. The building will be 70 x 105, 2 stories, and in the center of the shopping district. Previous and present downtown garages are in old buildings, discarded for other uses.

New Garages

J. B. Hatten.....Independence, Mo.
Will Smith.....Butler, Mo.
Schultz & Gantner.....Chillicothe, Mo.
Everett WoodDudley, Mo.
Charles Patterson.....Preston, Mo.
City Garage Co.....Buffalo, Okla.
McHenry & Mott.....Nowata, Okla.
McClure, Leftwich & Fretterman.

Oklahoma City, Okla.

F. W. Sharp.....Quapaw, Okla.
J. F. Cole & Son.....Smith Center, Kan.
Bradley & Williams.....Pittsburg, Kan.
C. J. Emmons Motor Co.....Argonia, Kan.
Hesse Garage Co.....Leavenworth, Kan.
John BrownMorehead, Kan.
George PfoutzOttawa, Kan.
Ed T. Jones.....Salina, Kan.
Lafin Garage Co.....Reece, Kan.
L. T. Neegle.....Reece, Kan.
Reed & Carey.....Belleville, Kan.
J. F. Jones & Sons.....Hillsdale, Kan.
W. A. BurrLeoti, Kan.
Maupin & AksmittLucas, Kan.
C. L. Somers.....Rossville, Kan.
Evans & Wagner.....Camden, Ark.
Monroe Smith.....Onalaska, Tex.
Keith & Hudson.....Granbury, Tex.
Silver City Garage Co....Silver City, N. M.

PACIFIC COAST

J. F. Schwebel has bought the Pace Garage and repairshop, Sacramento, Cal.

Rice & Forrest, Haynes and Hupmobile distributors, have moved to their new building at 1216 K Street, Sacramento.

O. E. Mathes has opened a Stewart Speedometer service station at 1223 Sixteenth Street, Sacramento.

Annereau Bros., automobile trimmers and upholsterers, have erected a new building at 1900 M Street, Sacramento.

J. F. Finnegan and E. G. Kooser have purchased the 3rd and P Repair Garage, Sacramento.

The Simon Auto Tire Co. has opened a vulcanizing shop at 1113 J Street, Sacramento.

Johnson & Piersol have sold the Vacaville Vulcanizing Works, and have established a vulcanizing plant at 1225 J Street, Sacramento.

E. W. Cutler, Willard storage battery dealer, has moved to a new building at 1506 K Street, Sacramento, where he will conduct a Willard service station.

The Benham Motor Sales Co. has opened salesrooms at 310 E Street, Marysville, Cal., and will handle the Grant car and Bethlehem truck.

The Auto Electric Battery Co. has moved to new quarters at 300 E Street, Marysville, Cal., and will handle Willard batteries.

A. M. Schively, accessory dealer, Marysville, Cal., has added a battery department.

The Kewpie Stage Co., 130 D Street, Marysville, Cal., has opened an accessory store and vulcanizing plant.

Croeger & Guerin have purchased the Western Garage, Marysville, Cal.

F. H. Johnson has opened Chevrolet and Oldsmobile salesrooms at 424 Second Street, Marysville, Cal.

F. W. DeWitt, Marysville, Cal., has opened salesrooms for the Republic truck and Cleveland tractor.

The Unity Tire Co. has established a vulcanizing plant at Marysville, Cal.

Russell N. Jones has opened a Willard storage battery service station at Oroville, Cal.

The Vaughn Vulcanizing Works, Chico, Cal., has moved to a new building at Seventh Street and Broadway.

The DuBrooy Motor Co., San Francisco, Mitchell and Saxon dealer, has opened a branch on Broadway, Chico, Cal.

Buchanan & Pyke have opened Reo salesrooms at 110 Broadway, Chico, Cal.

The Park Service Station has opened an accessory store at Fourth and Main Streets, Chico, Cal.

George S. Jeffery, Chico, Cal., is installing a vulcanizing plant in his Chalmers agency, Chico, Cal.

C. H. Nealls has purchased the Chico Tire & Supply Co., Chico, Cal.

F. I. Fletcher, Chico, Cal., has bought the repairshop of E. E. Canfield.

C. A. Jacobs has opened a vulcanizing shop at Chico, Cal.

The Gridley Cyclery, Gridley, Cal., is now styled Thresher's Motor Supply Co. A vulcanizing plant has been installed.

Arthur Gorwood has opened Studebaker salesrooms at 314 E Street, Marysville, Cal.

S. C. McGinnis and C. Hood have bought the Rock Springs Garage, Spokane.

The Western Motor Car Sales Co., Portland, is remodeling its public garage into a service station for the Chalmers and Hal 12 cars.

The Portland Garage, Portland, has completed its new storage warehouse and will carry a line of accessories.

The Snow-Forden Motor Co., Inc., Hood River, Ore., has bought the Cascade Garage.

The Keaton Tire & Rubber Co., Portland, has moved to new quarters at Sixth and Main Streets.

New Garages

Feather River Garage.....Oroville, Cal.

H. R. McCurry.....Gridley, Cal.

J. I. Watt.....Lincoln, Cal.

Twin City Automobile Co., Chehalis, Wash.

Chase Garage.....Sedro Wolley, Wash.

NORTHWEST

The Brehm-McMullen Co., Minneapolis, has taken over the Acme Motor Truck Sales Co. and moved to a new building at Hennepin Avenue and Tenth Street.

The Liberty Tractor Co. has moved to 2115 Como Avenue S. E., Minneapolis.

The Nilson Tractor Co. has opened headquarters at 2128 University Avenue S. E., Minneapolis.

The Republic Truck Co., Minneapolis, has moved to the building at 29 Ninth Street S., which was built for a Cadillac service station.

The Willis Tire & Rubber Co., 414 Third Street S., Minneapolis, has moved to new quarters at 1108 Hennepin Avenue.

The Electric Magneto Co., Minneapolis, has moved to 131 Tenth Street S.

M. J. Osborn has opened a used-car salesroom at College Avenue and Third Street, Minneapolis. A service station will be operated in connection with the business.

Tobias Sand, Hendricks, Minn., has bought the garage of H. J. Kruth & Son.

Hugh Vavrln, Albert Lea, Minn., has sold his interest in the Albert Lea Auto Co. to John C. Rebe, Nicolet, Minn.

Kraal Auto Co., East Grand Forks, N. D., has bought the business of the Northern Auto Co.

J. J. Hostetler, Granville, N. D., has bought the garage of C. H. French.

J. W. Burget and J. R. Cook, Fayette, Iowa, have dissolved partnership and the garage will be continued by Cook alone.

Roy Gaylord, Grand Junction, Iowa, has purchased the interest of his brother, E. M. Gaylord, in the Gaylord Vulcanizing & Welding Co.

C. A. Pratt, Dohrville, Iowa, has sold his garage to Robert McVay and George Ault.

C. F. Wigton, Britt, Iowa, has retired from the Britt Motor Co., and the business will be conducted by H. L. McNary.

George Watt, Newport, Iowa, has bought the tire repair and accessory business at Morning Sun from John Jamieson.

Philbrin Ignition System Revised

THE Philips-Brinton Co., Kennett Square, Pa., has brought out an improved and revised ignition contact maker and distributor which is considerably simpler and much more compact than the previous model. The principle, however, remains unchanged, and, as heretofore, the system is made for all four, six, eight and twelve-cylinder cars.

The mechanism of the new distributor is substantially the same as the older one with the exception that certain of the non-wearing parts have been reduced in size and slightly rearranged so as to increase accessibility. The condenser, for example, is new and is smaller than the previous style, the change permitting it to be closer to the contact points, for which reason its efficiency is increased.

The breaker mechanism is distinctive, and operates on the open circuit principle. A rotating cam pushes a tiny plunger out, thus bringing the contacts together and holding the contact for approximately $3\frac{1}{2}$ deg. of the revolution of the cam, providing for thorough saturation of the coil. In the event of a backfire, the plunger is merely pushed aside without bringing the contacts together. The adjustment screw is in direct line with the contact plunger, providing for direct and positive adjustment. Due to the shape of the cam and the arrangement of the parts, the contacts are brought together gradually, but the break is instantaneous. The parts are exceptionally light and lag has been eliminated.

The Philbrin system differs from all

others in that it supplies two different kinds of ignition from a single piece of apparatus. The system is first a single-spark system, in which a single, hot spark takes place at each plug in the proper order. In addition, provision is made for providing a stream of high-frequency sparks for the certain ignition of the charge under adverse condi-

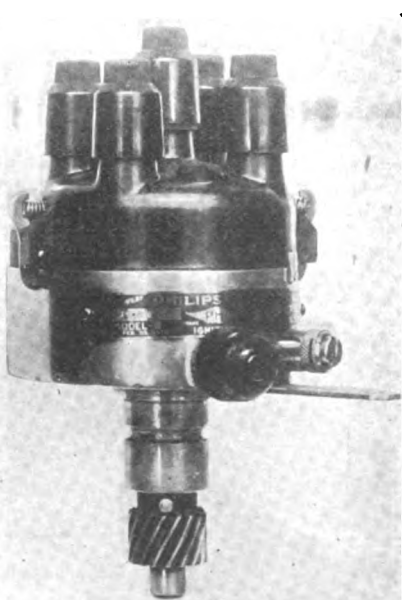
tions such as poor fuel, cold motor, etc.

Although the two types of ignition are supplied by the one system, the two circuits, single spark, and high-frequency, are entirely separate and distinct and therefore cannot interfere with each other.

The high-frequency system uses the same coil and distributor as the other system, but has its own individual condenser. The high-frequency interrupter, which supplies the continuous flow of sparks, is contained within the switch case and never requires attention. Current is supplied to the interrupter through a polarity reverser, thus equalizing the wear on the contact points.

Another distinctive feature of the system is the shape of the distributor blade which clears the terminals by a slight margin, eliminating friction and wear. Due to the shape of the blade, which is roughly a quarter of a circle, there is a continuous follow-up of sparks after the explosive spark has been delivered to the cylinder. The first spark delivered to the cylinder is an efficient one and the follow-up sparks continue until the distributor blade is within electrical contact with the distributing point of the next cylinder.

The switch provides for two sources of current, a lever selecting either. The switch has a lock and a ratchet button is provided for instantaneously changing from single spark to high-frequency system or vice versa. The coil is a special design, heat and moisture proof and is of the non-vibrator type.



The Philbrin instrument is slightly smaller and more compact in its new form

Accessories

W & B CYLINDER GRINDING ATTACHMENT

Converts an ordinary lathe into a cylinder grinding and re-boring machine. The grinding head screws on the spindle of the lathe and the angle plate is bolted on the front end of the carriage with a hole bored in the proper location for the grinder to work through. The cutter is set off center and can be adjusted to .001 in. The outer end of the lathe spindle

Heavy beveled plate glass is used on top and clear double strength glass on sides and front. It is finished in golden oak or birch.—Detroit Show Case Co., Detroit.

BENSON SPEEDOMETER SIGNAL

An automatic speed signal for motor cars embodying a speedometer, bumper and a transparent license number, surrounded

increases. Any pressure on the bumper locks the pointer of the speedometer and shows the speed of the car at the moment of impact. The traffic officer's master key alone can release the pointer.—Motors Appliance Co., East Moline, Ill.

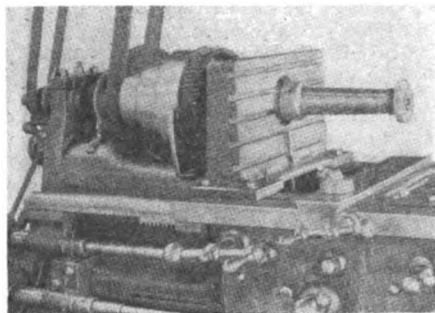
CORCORAN VICTOR INDICATING TAIL LAMP

Employs a self-contained signal lamp in series with the tail



PETELER JACK

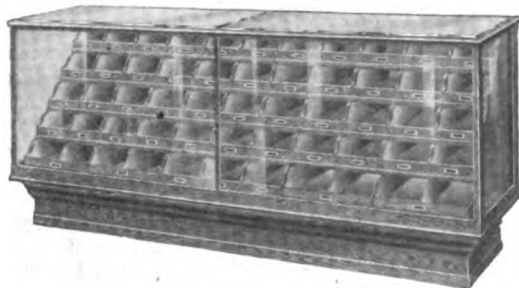
A small compact jack with a lifting capacity of 3000 lbs. It has a long detachable telescoping handle, each short stroke of which raises the jack $\frac{1}{4}$ in. A turn of the handle engages a reversing lever for lowering. When the load is off the jack a lift of the handle drops the elevating member to its lowest position. The working parts are pressed steel, the pawls tool steel and the cap and casing malleable cast iron. It is made in two sizes, $8\frac{1}{2}$ and $10\frac{1}{2}$ in. high, with $5\frac{1}{4}$ and 7-in. lift respectively. Price \$8. Coe-Stapley Mfg. Corp., New York.



is provided with a short hollow shaft on which the driving pulley is carried and through which the drive shaft rotates. A universal joint at each end permits working out of line. The complete tool consists of grinder head with connections through spindle, countershaft, angle plate, boring head, six wheels and collets, two wrenches, and diamond dresser. Weight, crated for shipment, 215 pounds.—Arthur T. Britton, San Jose, Cal.

DETROIT ACCESSORY SHOW CASE

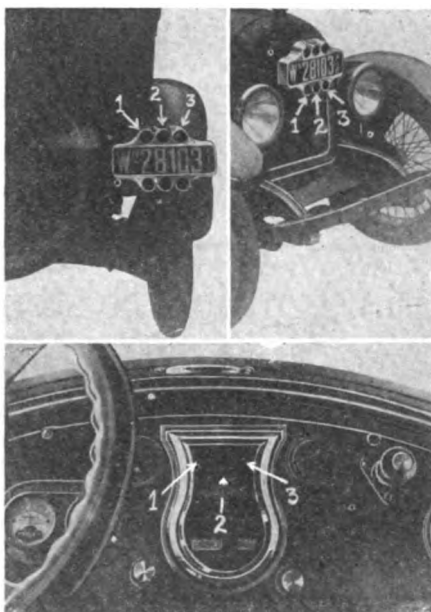
This case ranges in length from five to ten feet and contains from 35 to 70 drawers of graduated sizes. Some of the drawers are built double width, with removable partitions, for



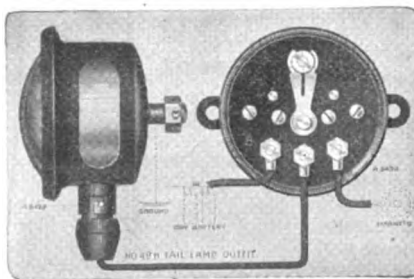
the display of larger articles. Each drawer has a bronze card holder and a brief description with price of article contained.

by a series of bulls-eyes at each end of the car which indicate the speed at which the car is going. The speed-indicating part of the device attaches to the dash. The lower end of the arrow which indicates the speed travels across electric fields as the speed increases and lights the bulbs back of the bulls-eyes.

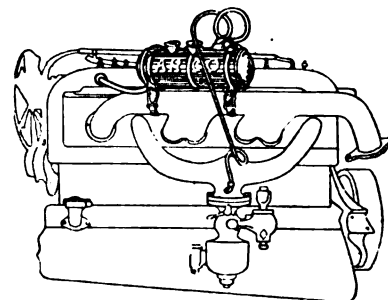
When the speed reaches 5 miles per hour one light shows, and successive lights are automatically switched on as the speed



lamp indicating to the driver when the latter is lighted. The controller switch is so constructed that in case the indicating bulb should burn out the switch lever may be moved over one point and the tail lamp will still operate on either the mag-



neto or the battery circuit. The lamp is adapted especially to Fords.—Corcoran Victor Co., Cincinnati.



NEW ARCO CARBON ELIMINATOR

This device operates by the injection of live steam into the intake, vaporizing the gasoline and permitting the oxygen to act upon, and break up, carbon formation. It draws its supply of water automatically from the water jacket through a strainer. A float and needle valve regulates the flow and keeps the water at an even height. Price \$17.—The Automatic Eliminator Co., New York.

A Department of

BETTER MECHANICS

No. 57

Standard Adjustments on the Hupmobile Series R

(Continued from last week's issue.)

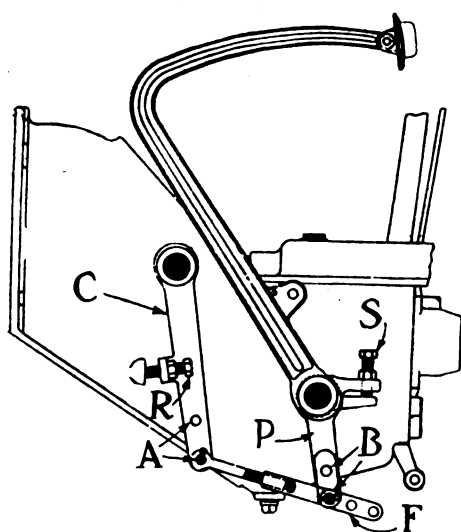


Fig. 11—Clutch pedal linkage showing adjustments to obtain various pressures

CLUTCH ADJUSTMENTS

THE clutch pedal may be adjusted to obtain four different pressures, as desired by various operators. The method of obtaining these adjustments, shown in Fig. 11, is by shifting the end connections of the clutch pedal adjusting link F to the clutch relief shaft lever C and the clutch pedal arm P. The following are the four adjustments possible:

1—40 lb. Place the clevis F between the lower of the two holes B in the clutch pedal arm and the upper one of the two holes A in the clutch relief shaft lever.

2—35 lb. Place the clevis between the lower hole in the clutch pedal arm and the lower hole in the clutch relief shaft lever.

3—30 lb. Place the link between the upper hole in the clutch pedal arm and

the upper hole in the clutch relief shaft lever.

4—25 lb. Place the clevis between the upper hole in the clutch pedal and the lower hole in the clutch relief shaft lever.

This permits the clutch to be set with the required pressure desired by any driver and the position of the clutch pedal pad may be shifted by lengthening or shortening the clutch pedal adjusting link.

The clutch, Fig. 12, is of the multiple

disk type. If slipping is present and the plates are clean, greater pressure may be applied by compressing the clutch springs to a greater extent. After removing the clutch inspection cover it will be noted that there are several springs projecting through the face of the clutch. These springs are held in the compressed position by means of a spring retaining washer and key caught in notches N in the spring stud T. By simply compressing the clutch springs and pressing the washers and locks up to the adjacent notch, as shown, the pressure existing

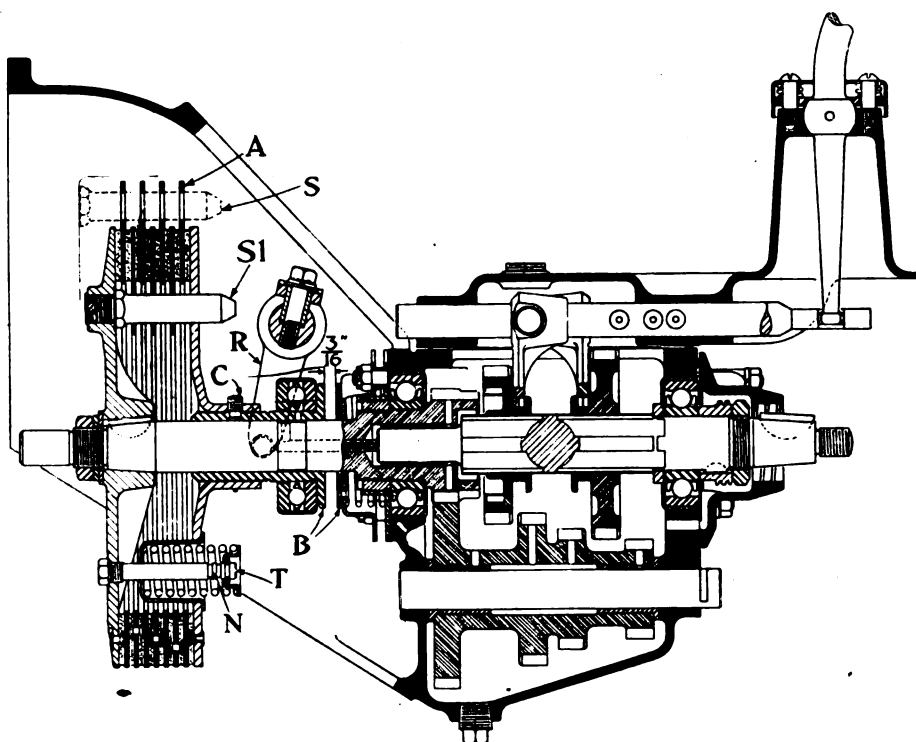


Fig. 12—Section through Hupmobile gearset and clutch showing points at which clutch adjustments are made. Note the distance $\frac{3}{16}$ in. between the faces of the clutch brake. This is the correct setting

between the plates is increased. This adjustment should be made on all clutch spring studs at the same time so that the clutch pressure will be equalized over the surface of the plates.

To prevent clashing of gears on shifting due to a spinning clutch, a clutch brake B is provided. In Fig. 12 it will be noted that the clutch release bearing is carried on the forward half of the brake and that the entire assembly is threaded and held in place by the release collar set screw C. Should the clutch brake become worn the gears will clash on being shifted. The remedy is to remove the clutch inspection plate, crank the engine until the release collar set screw is at the top and remove the screw. The clutch release collar is turned to the left until the distance between the two halves of the brake is $\frac{3}{16}$ in. A quarter inch drill is then used to "spot" the clutch shaft through the release collar set screw opening. This will assure the permanence of the adjustment and care should be taken not to drill this hole more than $\frac{1}{8}$ in. deep. When the set screw has been replaced it should be locked with a wire as prior to removal.

REAR AXLE ADJUSTMENTS

The rear axle gears are carefully adjusted before shipment, but should noise develop or a peculiar growl appear the necessity for readjustment is indicated. The gears should be set so that the back face of the large end of the teeth of the opening are flush with the outside face of the teeth of the ring gear. This condition may be brought about by moving the driving pinion forward or backward and the ring gear to the right or left. The position of these adjustments is shown in Fig. 13. The adjustment locks L are first removed. On the pinion shaft

two large prong nuts, F R, are exposed. By turning these prongs together to the right the pinion gear is shifted inward, if turned to the left it is shifted outward. Likewise, the ring gear may be shifted to the right or left by turning the nuts B until the position of a minimum noise with a small amount of backlash is obtained.

One single adjustment compensates for all wear in these gears. By removing the cap screw holding the adjusting nut

in position, as shown in Fig. 14 and turning the adjusting nut to the right, the backlash due to the steering gear wear may be removed.

However, the fact should be appreciated that all lost motion apparent in the steering wheel is not necessarily due to wear in the gear. The drag link and the cross rod connections should be investigated for backlash and care should be taken not to screw down the steering gear adjustment too tight. After the adjustment has been effected the adjusting nuts should be locked in place, using a cap screw.

LOCATING TROUBLE IN STEERING GEAR

The steering gear is filled with a heavy graphite grease and this should be thinned occasionally by inserting a small amount of cylinder oil through the oil hole at the top of the housing. Hard steering is not necessarily due to the steering gear and the drag link connections should be lubricated from time to time. About the easiest way to locate trouble in the steering gear is to jack up the front wheels and disconnect the drag link. The gear may then be inspected without interference of other parts and if it still works with difficulty the alignment of the steering column should be inspected. However, the gear should not be torn down except as a last resort.

The method of assembling the working parts is shown in Fig. 15. Great care must be taken to place the sliding half nuts in proper position on the screw. The following rules should be noted in doing this work:

1. The left hand nut should be at the top for left hand steering wheels.
2. The right hand nut should be at the top for right hand steering wheels.

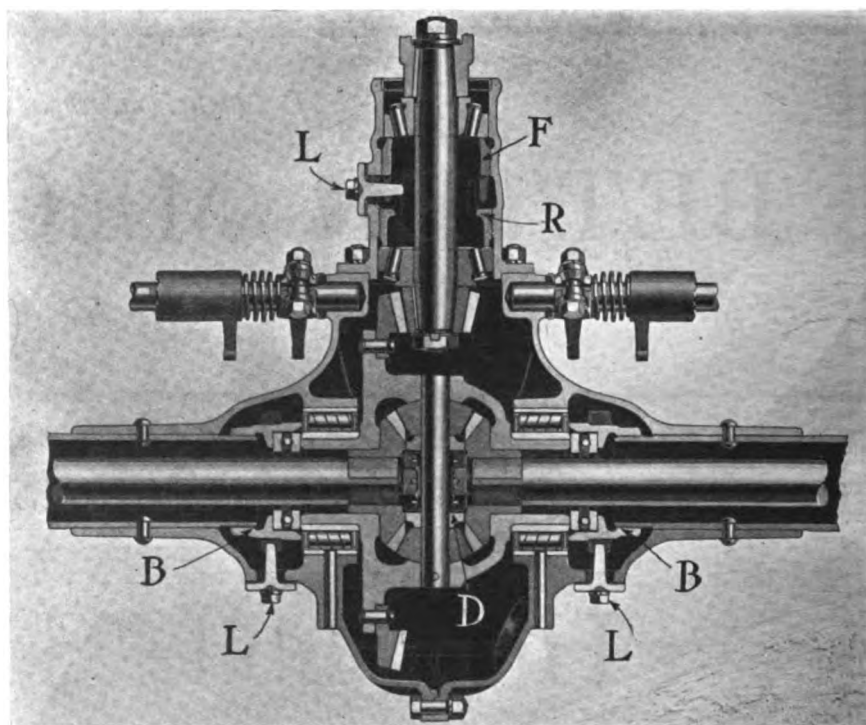


Fig. 13—Section through differential indicating adjustments for the bevel gear bearings and the differential pinion bearings

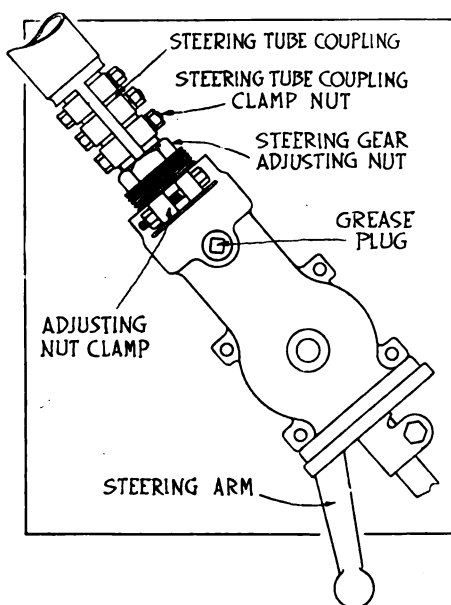


Fig. 14—Backlash in the steering gear due to wear may be removed by turning the adjusting nut to the right

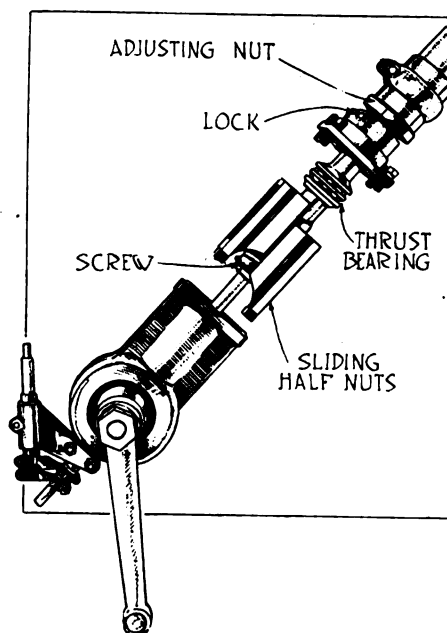


Fig. 15—Method of assembling the steering gear, showing the correct position of the sliding half nuts

Transportation Will Win the War

(Continued from page 16)

know that American invention has brought about a plan by which the spruce is seasoned under chemical pressure so that it is available for use in airplanes in fourteen days.

It will interest you men to know that they have invented the so-called dope for covering the wings of airplanes so they will not burn.

It will interest you further to know that these men in charge of the aircraft division at Washington are so far-seeing that when they found the quantity of castor oil that was going to be necessary for the lubrication of this motor—and it is necessary for them working at high speed—they had planted last year in the Southwest 100,000 acres of castor beans, so there will be plenty of castor oil.

The automobile plants up to this time have taken on more than \$600,000,000 worth of war work, and there is no more war work available for automobile plants at Washington now. The automobile industry committee, composed of Mr. Copland of the M. A. M., Mr. Chalmers of the Chamber of Commerce, and Mr. Lee of the Ford company, are stationed in Washington all of the time to co-ordinate the needs of the Government to the capacity of these plants.

The manufacturers have taken on this work so fast that there is no more war work available until the next appropriation comes through. They are making tanks and planes and trucks and submarine chasers and other things that are necessary in this war.

You know we have had a good deal of talk about the situation in England, and why they are not allowed to use passenger cars, and why we should not be allowed to use passenger cars here, by some people who do not know the situation.

Only 250,000 Cars in England

A cable from England the other day said they had 250,000 passenger cars and 40,000 trucks. We have seven states in this country each of which has more than 250,000, and New York State has 408,000. They don't appreciate the motor car is such an important element in our everyday life, with distances so great, as compared with that small country. Cities and towns and villages are being laid out now solely on the use of motor cars, absolutely an essential in our life.

They talk about Canada. They bought fifteen or sixteen million dollars' worth more last year than they ever had before. Not that they wanted to waste their money they had been making as the result of war work, but because they had always wanted motor cars but could not afford them. Now they are buying them in great quantities.

In the next year there will probably be some difficulty on the part of the

manufacturers in shipping the number of cars to you that you require. It seems to me that the motor car dealer has got to do a good many things for himself. Above all things, he has got to readjust his business with this new war situation.

If I were a dealer and found that instead of getting four hundred cars this year I would only get about three hundred, I think I would take on another line, if I could get it and it was not conflicting. I am sure I would take on a truck, because I don't see how the farmers out here will get along without a motor truck.

You give a farmer a motor truck and a telephone and he will find out the price of hogs in the morning and he will have them on the market in the afternoon. They are the two most efficient things he can possibly have on his farm.

I think I would show the farmer and the public generally that for every motor car I put on the farm I released five acres of tillable land that he had to maintain and cultivate for the horse, and I released it for the raising of human foodstuffs, which would have a good deal to do with the increased food production of this country.

Live Dealer Gets His Share

I think in towns that would permit it I would want to carry some of the advertising that Mr. Peake and his associates have been doing here. Don't be so sure about being individually in it. If people don't buy motor cars, you won't sell any. *Get at it in the right kind of a spirit. Get them to buy motor cars, and then the live dealer will get his share, and the other fellow doesn't deserve any of it.*

I think you ought to cast a glance at this used car situation that we have before us all the time. I think this used car situation is one of the menaces of the business, because the dealers haven't the courage to decline to make a sale on which they cannot make a profit.

The great trouble with the used car business is that the average dealer is afraid some other dealer will get that used car. I can go down the street with a used car and get ten dealers each to bid higher than the other on it until *finally one will get it.*

I don't think you can go on that way. I think you ought to have official appraisers to appraise the cars. You ought to have some kind of co-operation, so you will not be fooled into paying high prices for used cars.

And I would teach my salesman that his job is not to buy used cars, but to sell new cars.

The trouble with the average salesman and dealer to-day is that when a man talks about buying a car he first talks about the amount of service he is going to give him, and that scares the man because he shouldn't have to give him any. The next thing he talks about is how much he will give him for the used car before he sells the other.

Sell the new car. The price comes afterward. It might be cash or it might be beef, or it might be anything else.

I think you will have to work a little harder selling cars this year, and work more efficiently. There is a good deal of waste in the motor car business. A good many people thought it was a kind of a mushroom affair and would not last.

Some bankers still think that. I think you men ought to talk to your bankers more, and show them your business. Keep on a friendly basis with the bankers. The banker has a good risk when he allows a dealer eighty to ninety per cent on the price of the cars that the dealer pays the factory. There is no risk in taking a standard car of that sort. The bankers know that and want that business.

The bankers may be curtailing in certain lines, not particularly in the motor car line, but every line. The automobile dealer who is entitled to credit will get it just as well from the banks as the shoe dealer or any other dealer. The bankers realize now that the motor car business is real business.

When anybody tells you that it is a non-essential, they are insulting the great American people who spent a billion and a quarter dollars on motor cars last year, and who use more than five millions of them in the country for use that saves their time and greatly increases the amount of work that they can do.

It seems to me that if I was a dealer I would take on tractors. There is a big field there, and I have no doubt a great many will do it. I am sure they ought to encourage the farmer in his production, and greatly increase his production, which is one of the greatest instrumentalities in winning the war. And above all things, every man in this room, and every other American citizen, should do those things cheerfully, just as cheerfully as the great President Wilson does in assuming those great responsibilities at Washington.

I never saw his picture in the movies, or I never saw him on the street—which I do quite often, and incidentally he takes an automobile ride every afternoon as a matter of relaxation—I *never saw him but what he was always smiling.* And after all, that is the way you have got to meet the problems of life.

Support Red Cross and Y. M. C. A.

I want to say a word to these dealers who have been supporting the Red Cross and Y. M. C. A. campaigns for the boys. *You want to support them until they hurt.* I have no admiration for the man who says he cannot donate to the Red Cross because he has been giving up so much. *These are times that you have got to keep on giving up—these Liberty Loans and Red Cross campaigns and Y. M. C. A. campaigns and all that sort of thing to provide for the care of these boys that are fighting for you, that you may be home and have your eight hours in bed and your comfortable house.* So I say, I know these motor car dealers are not going to take a backward stand with any line of industry when it comes to supporting these campaigns. *I would very much rather donate to the Red Cross now than to the iron cross later on.*

And so, gentlemen, in closing I just

want to ask that you men take pride in being the third industry in this country, and selling the greatest need of all of them, transportation. *I want you to make yourselves just as efficient as you can.* I want you to know that your affairs at Washington are being cared for, not only by our people, but by the association of which Mr. Vesper is the head, and who will co-operate with us down there. The Congressmen and Senators pay a good deal more attention to what they

hear from their home towns than from the people in Washington, and your influence and the influence of the dealers is the influence that prevented that tax at Washington from being five per cent instead of three per cent. And you are to be congratulated on the support you gave to that campaign, and in showing those Congressmen and Senators there was more to this automobile business than a few millionaires who had got rich in it, and that it was a business in which

every village and hamlet in the country was interested.

And so I say, go on with your business, be efficient, do everything you can to help in connection with the war, and all you can to help those boys of ours who have gone across the ocean to do their work with our Allies in standing in the path of that beast of Potsdam, who would place his bloody paw on the necks of the free people of God's beautiful earth.

Dealers Must Be More Efficient

By David Beecroft

Directing Editor, Motor World

OUR success in the war is largely made up, not only of our success as individuals, but our ability to co-operate. I don't need to say anything regarding co-operation in Kansas City territory, because this meeting and your great show are the best examples that co-operation is one of your basic fundamentals of business.

But, gentlemen, these are great days to be alive in. I know of no time in the history of the world that it is better to live than in these days when we are putting up this great fight for those principles which we individually love. I know of no section of the country where it is much better to be alive at this time and play our part in the war than in this great Kansas City zone, and at this particular time. For in looking over your statistics of last year, we find this prosperity on every hand. In the four states of Missouri, Kansas, Nebraska and Oklahoma we find that during the last year there was an increase in the value of farm products and live stock of over a billion of dollars.

What better part of the country, gentlemen, would it be possible to live in than a section where these two great essentials of war are so productive as they are here? And my personal message in that connection is briefly this: Are we as individuals in this territory, and are we as business men in this territory, and are we as organizations in this territory, *playing our part as soldiers in this war?*

There are two classes of soldiers in this war. There are the boys we are sending to France to fight for us there, and there are the boys and the men and the women at home who are supporting those boys on the other side and backing them up and furnishing them with the sinews of war. We at home are in the second army, and it is just as essential for us that we ourselves exercise the greatest efficiency as it is that our boys on the other side do the same thing. *We sit here at this moment, calmly and contentedly, and think of the boys holding the line on the other side. We have that assurance in our hearts that they*

are not slackers, and that the German is not going to come along and find them asleep and break through that line and perhaps wreck civilization. We have that confidence in them over here, and we know it is not misplaced.

These are days when as individuals or firms we must work harder and more efficiently. We must accomplish more and at less expense. *This war will be won on increased production, not on curtailment.* What would we think of those boys on their march to battle if they started out with the curtailment of munitions, curtailment of forces, curtailment of supplies? It would almost arouse our indignation. We at home, to give that increased production that the world demands, must increase and not curtail.

Our country has spent in the first year of the war, or appropriated, nineteen billions of dollars. That is a huge sum. From 1782 until this war began, our total national expenditures, including the Civil War, were but twenty-eight billions, and in one year we have appropriated nineteen billions.

With that huge amount of money to be invested, a great amount going into labor, *there is no part of the country that will not profit very substantially as a result of that.* So that in these days there is no thought in any part of this country of reduction of activities or reduction of business.

Business may be a little unusual, but where it is unusual, we will find it is unusually great rather than unusually small.

Now, we are called upon to make our changes in business, and to make our readjustments, and that is one of the big problems that lies before us. *You as dealers must be more efficient.* Your problem this year will perhaps not so much be selling cars as getting them, having them shipped to you.

These are times when the dealers must branch out. We have heard a little about decreased production, but there is nothing terrorizing or alarming in that. *You must get out and get busy.* If you can't get the same number of automobiles you

sold last year, then you should become what we call an "automotive" dealer in merchandise-transportation.

Increase your line by taking trucks, tractors, and other lines. At Minneapolis we had an exhibit of thirty-five different applications of farm equipment that can be operated by internal combustion engines.

You are selling 75 or 80 per cent of automobiles to farmers. They need trucks. We are told by statistics that over one million horses and mules were sold in this country last year, and they represent the better class. *That must be made up by motor power.*

The day has almost arrived when the horse is too inefficient and expensive, and when we must look upon it as a luxury on the farm.

The 18,000,000 horses we have now on the 6,000,000 farms are eating approximately the production of five acres each. *That means they are consuming the same amount of food that would be required for 40,000,000 people, food for 40,000,000 people for one year.*

We should have no hesitation in going into this broad field. There is a future in this country for millions of motor trucks. Every one of the 6,000,000 farms could be more efficiently operated with motor trucks than with horses. We should broaden out into a wider field, and by so doing we are putting that effort into the situation which we expect our boys on the other side to do.

I think it would be a solemn moment for any of us if, when peace is signed and our boys come back, we ask ourselves, *What did I do in this War? What extra exertion did I put forth?*

If they come back and find us walking along in that same old rut as when they went away, that would be a solemn, sad and sorrowful moment for all of us.

BUT IF WE TAKE HOLD OF THE SITUATION IN THE PROPER SPIRIT, BROADEN OUR ACTIVITIES AND MEET THESE PROBLEMS AS THEY CONFRONT US, WE CAN GO OVER THE TOP AS OUR BOYS ARE GOING TO DO ON THE OTHER SIDE.

Tractors Following Motor Car Design

Construction Slowly Becoming Standardized—Four-Wheel Design With Four-Cylinder Engine Appears Best—Weight Being Reduced

By David Beecroft

THE design of tractors is gradually standardizing itself and it will not be long before more clearly defined classes exist. It will be some time before all tractors have four wheels just as the motor car or truck, but more definite progress along certain lines can be noted this year than last. The progress has not been so fast as we would like to have seen, largely because the war has placed an unexpectedly great demand on tractor makers. They cannot meet their orders, and there is a shortage of help to bring out new models. It is scarcely human to make great progress when the demand is so great. The same is true of tractor makes as of car makes in this respect.

There are some rather clearly defined movements. There are, for example, fewer three-wheel designs this year than last. Rumors have it that the number of three-wheel designs will drop off during this season, some makers of such designs changing to four-wheel jobs.

Creepers Type Still Strong

The creeper type of machine is still strong in spite of the scores of arguments pro and con regarding it. A year ago many declared that the creeper job was not necessary. Many to-day say that a job with large wheels is as good or better than a creeper type. No matter what is said there are still a lot of them, led, of course, by Holt, which has the word caterpillar patented so that other firms cannot use it and as a result there has sprung up a veritable list of names, such as creeper, track-layer, flat-wheel, belt-rail, crawler, etc.

Some of them have two creepers, like Holt, Cleveland, Trundar, Bullock, J. T., etc., without any wheels at all. Others have two creepers but also either one or two front wheels for steering, such as one Holt model, Bates, Leader, Acme, track-layer, etc., and some have a single creeper with two steering wheels, such as the Bates steel mule, Beltrail, etc.

The drum type has a very slight following at present, by drum type being meant that design which has a large drum in the rear instead of two wheels. An example is the Gray, built by the Gray Tractor Co., Minneapolis. This tractor is being shipped in large quantities to France and is a good design for use in large fields.

Wheels of All Sizes

There is as yet no uniformity in the diameter of tractor driving wheels, the range of versatility being much greater than in motor car wheels or motor truck wheels. Henry Ford has wheels 42 in. in diameter and uses a worm drive. The

Wallis uses 48-in. wheels with live axle drive. Samson has 41-in. wheels with internal gear drive. Barrett has 60-in. wheels with internal gear drive, and the large machines that are huge traction engines to pull ten or a dozen plows have wheels over 7 ft. in diameter.

A trend of the year is that both wheels and gearsets are being made lighter. One maker has cut 2200 lbs. out of his tractor by using lighter wheels and gearsets. These lighter wheels are being carried on Hyatt and Timken bearings, whereas formerly very few makers used anything but plain bearings, and many still do. The use of flat spokes instead of round spokes is increasing, and the wide metal tire is being welded together instead of the ends meeting and being held in place by a plate.

Little Change in Frames

There has not been much progress in frame design, and the R. & P. is the only machine to use a pressed steel frame. Others are going to fall in line just as soon as they get their design settled and know what they are going to build. Many are putting off the use of the pressed steel frame until some one brings out what might be called a standard shape just as we have in cars and trucks. The R. & P. is the first suggestion along this line. On many tractors the frames are rolled channel steel. On one or two cast steel is used. Some have built up frames made of flat steel pieces and some use angle bars. There is yet much progress to be made in frame design.

One thing stands out very clearly in tractor equipment, and that is the air strainer. It is utterly impossible to keep a tractor engine in good condition without an air cleaner, particularly where there is dust. In alkali soils engines have had their piston rings cut to pieces in 3 weeks by the dust. The motor car or motor truck has never had to contend with anything so serious. Recently a leading maker of tractor engines declared that if there were not efficient air cleaners the internal combustion engine would be a failure in the tractor field. There are cases on record, and the writer has seen some of them, where the top piston ring has been cut out and made entirely useless in two weeks. In some all rings have been entirely useless. The writer has seen pieces broken off the upper corners of the pistons and the cylinders ruined in a few weeks.

Need for Air Cleaners

There have been air filters or cleaners for some time, the Wilcox-Bennett Car-

bureter Co., Minneapolis, being a leader in this work. This company has what is known as an air cleaner that does not use water or oil to filter the air. The air is given a rotary motion so that the dust particles are thrown out and fall into a lower dust collector, while the air rises and passes to the carbureter. This cleaner is made in many sizes and has a wide use.

The Holley Kerosene Carbureter Co., Detroit, makes an air washer in which the dust is collected in water and all of the air must pass through the water. Considerable water is used and the water must be changed frequently.

A great number of new cleaners are coming out and it looks as if there may soon be as many air cleaners as kinds of headlight dimmers, or carbon removers, or anti-freeze solutions. A new water type which is just out is the Leonard, which in its present form is a large size vertical cylinder device 10 or more inches in diameter and more than twice that height. It carries a large volume of water and in addition to passing through this water the air must pass through three or four thickness of fine mesh above the water. It is made by the Leonard Air Washer Co., Kalamazoo, Mich.

Some companies are developing their own air cleaners and elaborate tests are being made to determine how successfully the dust is being taken from the air.

Dust is Expensive

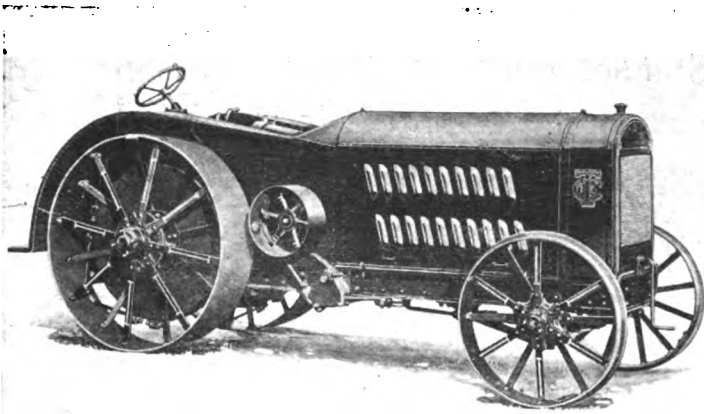
It is safe to say that dust in the mixture is costing the farmers hundreds of thousands of dollars each year and is working havoc with the reputation of engines. It is quite impossible to run a tractor engine in dusty work without an air cleaner. The last chapter has yet to be written in the design of air cleaners, and you cannot meet a tractor maker, and more particularly an engine maker, who is completely satisfied with the present designs. There is no definite decision yet as to whether the air type or the water type will prove the better. Size is not a great factor with engine makers, providing the cleaner will do the job. They say a large radiator is needed to cool the engine, and that a cleaner is just as essential as a radiator.

Four-Cylinder Vertical Engine Best

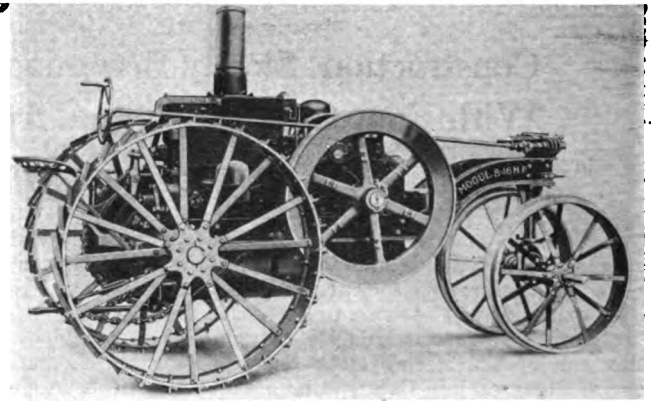
There is no question now but that the four-cylinder vertical engine is the solution, at least for the present. It has largely displaced the opposed two-cylinder design and also the two-cylinder twin

(Continued on page 40)

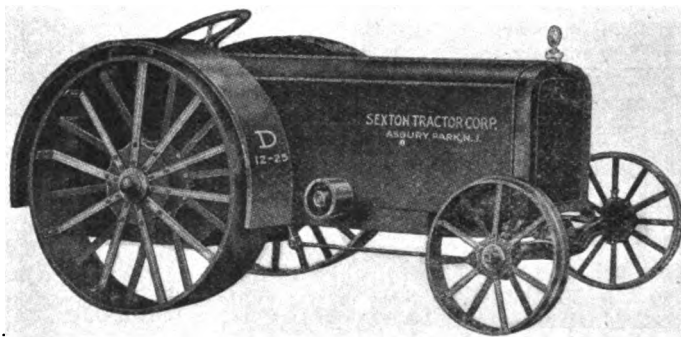
Some of the New Model Farm Tractors



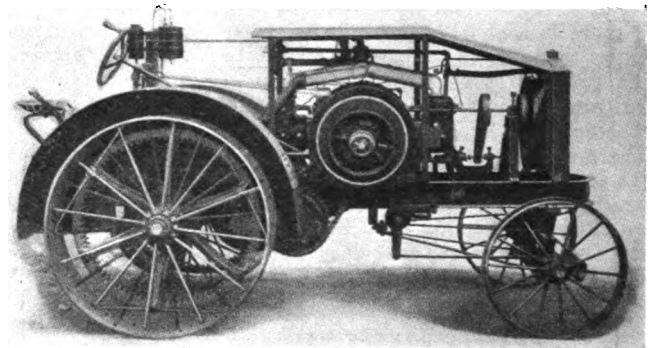
The Twin City is a four-wheel type



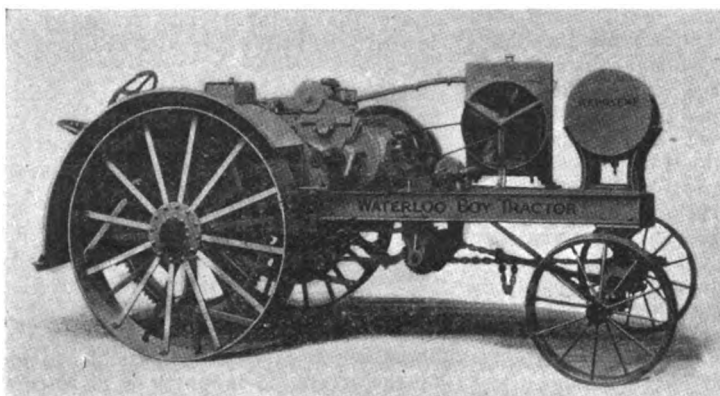
Large rear wheels distinguish the Mogul



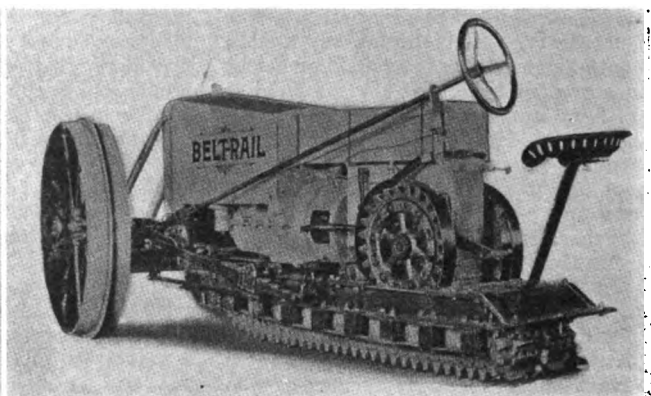
The Sexton follows motor car appearance



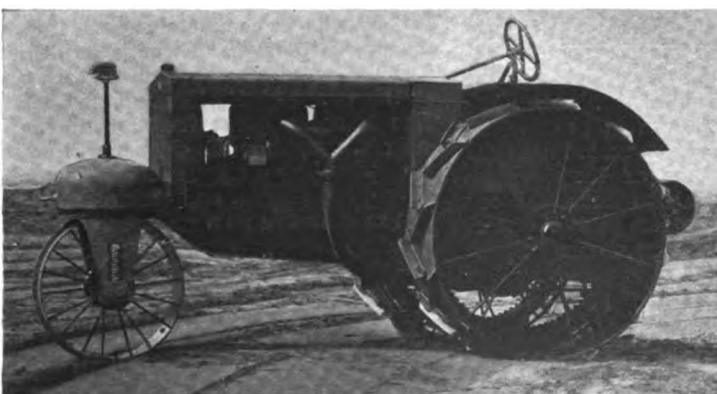
This is the Leader tractor Model B12-18



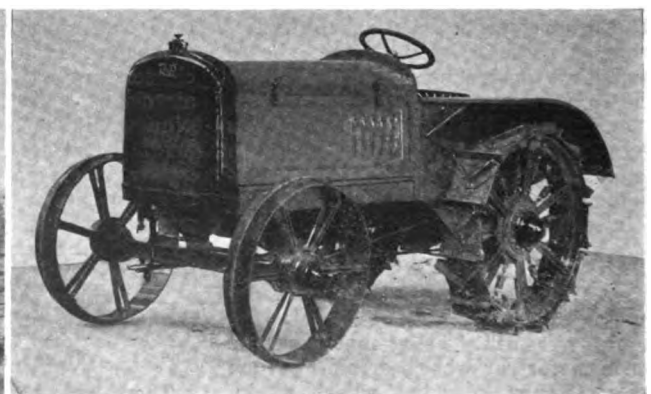
The Waterloo Boy also has four wheels



The Belt-Rail is a new creeper type

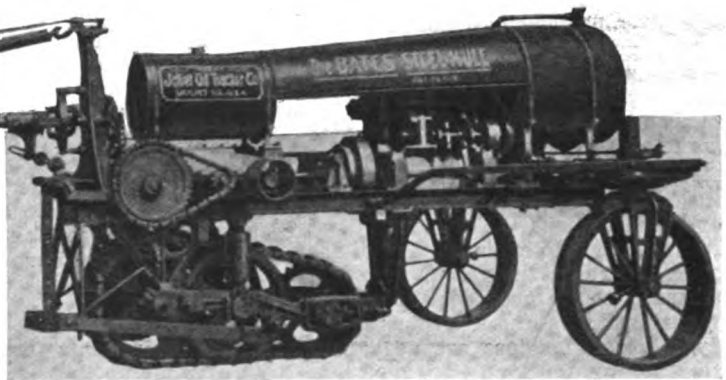
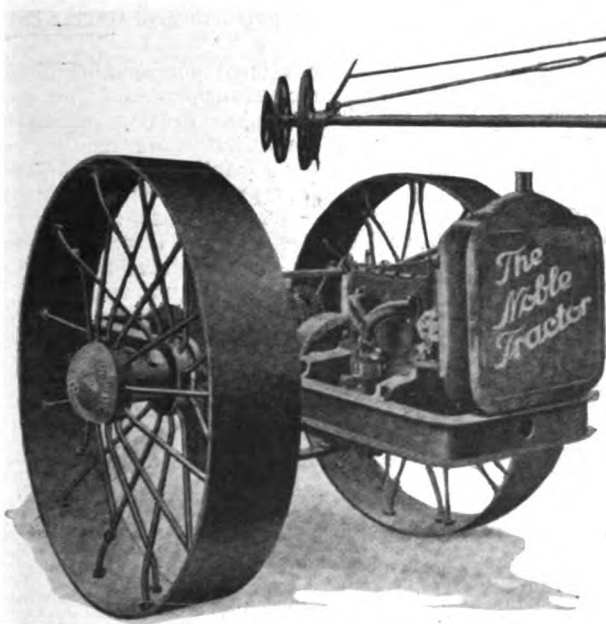


The Wallis has a single steering wheel

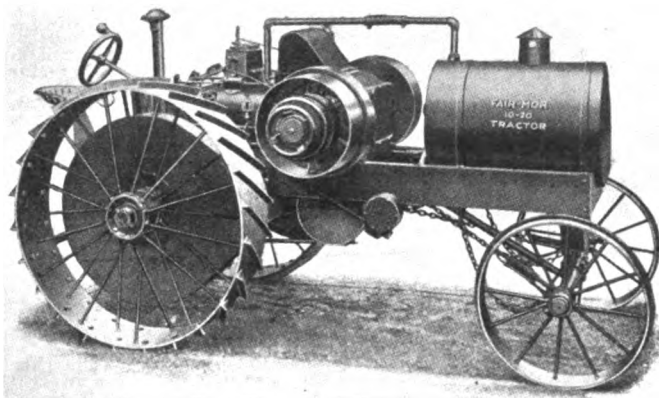


The R & P follows automobile practice closely

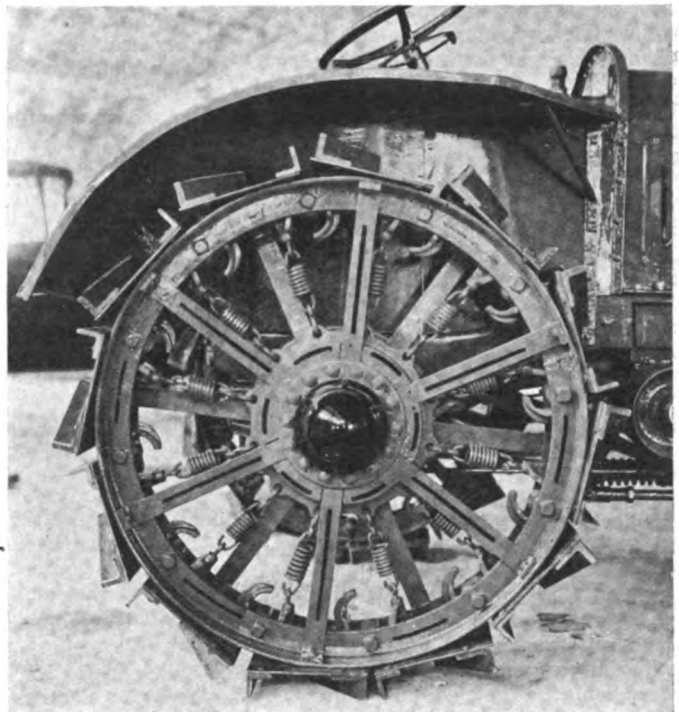
Exhibited at the Show in Kansas City



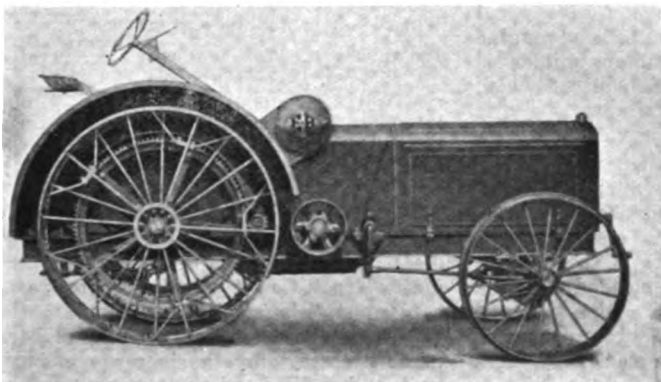
The Noble, at the left, attaches directly to the farm implement. The Bates Steel Mule is shown above



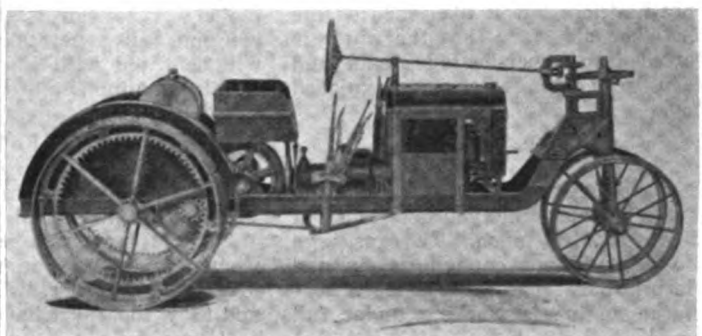
The Fair-Mor tractor follows already familiar principles in design and construction and, like many modern machines, has four wheels



The wheels of the R & P tractor are styled "pad" wheels and are the same design as are used on military tractors in the Italian army



This is the standard Emerson-Brantingham tractor with four wheels and the engine under a forward hood



The Avery has internal gear drive

(Continued from page 37)

design in which the two cylinders are side by side instead of end to end.

Much improvement has been made in tractor engines in the last year and much yet remains in many designs, but there are several makers who have most excellent engines, and they need them. The tractor engine has a hard role to fill. There is no down hill coasting to cool. It works all the time.

The use of kerosene is a very much mooted question with tractor makers. The demonstrations at Fremont last August did much to explode many of the fallacies regarding the use of kerosene, but there is still a good deal of camouflage surrounding its use. Although literally scores of engines are advertised to use it, there are very few, if any, that burn it successfully. Carbureter experts declare that there is not a single one that burns it as efficiently as gasoline.

Guesswork With Kerosene

The trouble seems to be that very few of the makers are adequately equipped with electric dynamometers for testing their engines and finding out the exact power. Every tractor factory should have such an accurate engine testing equipment. The motor car industry has used such, and it is much more needed in the tractor field. When our tractor factories get this modern equipment they will find the exact power they are getting out of their engines with kerosene and will also know how much kerosene they are using. At present there is entirely too much guesswork.

Those who have made dynamometer tests agree that with the four-cylinder vertical engine they cannot get as much power out of kerosene as out of gasoline. Some say the best they can get from kerosene is 10 per cent less power than from gasoline. The majority are much lower than this.

Here is the reason: You need much more heat to burn kerosene than gasoline. You heat the air as hot as necessary to break up the kerosene but when you do this you cannot get as much of the hot mixture into the cylinder as if it were cooler. The result is you do not get so much power. Your engine gets hot and you have pre-ignition and still greater loss in power results. To prevent pre-ignition many drop water into the carbureter so as to have the water change into steam and cool the mixture. This cools the mixture and cuts down the pre-ignition, but it also reduces the power. The old story that the water is converted into super-heated steam and helps in driving the piston is an exploded fallacy.

Troubles With Kerosene

When you put on a special manifold to handle the kerosene, you get plenty of heat, in fact, too much. The gases go in too hot and not enough get in and you lose power. You get too much heat when the engine is working under full load and when you close the throttle the kerosene condenses so that when you open it again the kerosene gets into the

cylinder in drops and cuts the oil film off the cylinder walls and then drips into the crankcase and ruins the lubricating oil.

Some makers use very heavy oils so that they are not readily cut by the kerosene, but the oils carbonize and burn in the combustion chamber with the result that carbon deposits increase and the engine gets into bad condition.

Engine manufacturers are doing their level best to make their engines better, and all agree that you cannot take an ordinary gasoline engine and by fitting a hot-jacketed manifold and a special carbureter, use kerosene. That has been tried and it has failed. Here are a few reasons why:

Requirements for Kerosene

You must have a lower compression to burn kerosene than gasoline.

You must have a greater water jacket capacity, particularly over the cylinder heads, where a great volume of water is needed to carry off the heat.

It is necessary to have the valve seats well waterjacketed to carry off the higher heat from the burning in the explosion chamber. The jackets generally extend further down the cylinder walls.

It is necessary to place the spark plugs preferably in the cylinder heads, where you can get them waterjacketed to keep them cool.

Cylinders have to be made a looser fit at the top with kerosene than gasoline, because they get hotter and expand more. Many engine builders are making different designs of pistons so that they will carry off the heat better.

Some engine makers are using smaller valves so they will better withstand the high temperatures of the hot kerosene explosions, because the valves do not cool so well as with gasoline, as the kerosene mixture is much hotter entering the cylinder than the gasoline one.

These few reasons are enough to demonstrate to you a few of the difficulties with kerosene, and the half has not yet been told.

Electric Starter Coming

Yes, the electric starter is coming on the farm tractor. Tractor engines now being designed have provision made for adding the electric generator as well as the electric starter, and Remy has just brought out a new electric engine governor which is attracting a great deal of attention among tractor and engine makers. One large tractor builder is bringing out a new model, all of which will be fitted with electric starting and lighting equipment.

Electric lighting is essential for night plowing, a good deal of which is sure to come with increased crops needed for the war and fewer laborers on the farm. Tractors may work all night this spring.

Electric starters are needed so that women and boys can run the tractors. Maimed soldiers will be coming home and they, too, must have electric starters so that they can handle tractors. Tractor makers are opposing the starter just like truck makers did, but the thin edge

of the starter wedge has already entered, and the future development will be watched with special interest. Special jobs are being designed and the battery people are awake to the necessity and are already prepared to give tractor batteries.

Much improvement yet remains to be done in tractor transmission. The use of forged gears has greatly increased during the year, but more has to be done. The use of anti-friction bearings has made great progress. An effort is now being made by nearly all makers to enclose the gears, as well as use smaller ones. Better differentials are being used and greater transmission efficiency accomplished. There are still too many machines with rear wheels that have large exposed gears. Another year will witness a big reduction in the number of such.

Tractor Exhibitors at Kansas City Show

Acme Harvesting Machine Co., Peoria...Acme
 Advance Rumely Thresher Co., Laporte, Ind., Rumely
 Allis-Chalmers Mfg. Co., Milwaukee, Allis-Chalmers
 Aultman & Taylor Mch. Co., Mansfield, O., Aultman-Taylor
 Avery Co., Peoria...Avery
 Bullock Tractor Co., Chicago...Creeping Grip
 J. I. Case Plow Works, Racine...Wallis
 J. I. Case T. M. Co., Racine...Case
 Cleveland Tractor Co., Cleveland...Cleveland
 Coleman Tractor Co., Minneapolis...Coleman
 Dauch Mfg. Co., Sandusky...Sandusky
 Dayton-Dick Co., Quincy, Ill...Leader
 Electric Wheel Co., Quincy, Ill...Allwork
 Emerson-Brantingham Imp. Co., Minneapolis...Emerson-Brantingham
 Fairbanks, Morse Co., Chicago...Fair-Mor
 Four-Drive Tractor Co., Inc., Big Rapids, Mich...Four-Drive
 General Motors Truck Co., Pontiac...Samson
 Gile Tractor & Eng. Co., Lansing...Gile
 Hart-Parr Co., Charles City, Ia...Hart-Parr
 Huber Mfg. Co., Marion...Huber
 International Harvester Co., Chicago...Mogul, Titan
 Joliet Oil Tractor Co., Joliet...Bates
 J. T. Tractor Co., Cleveland...J. T.
 Kansas City Hay Press Co., Kansas City...Prairie Dog
 La Crosse Tractor Co., La Crosse...Happy Farmer
 Lauson Mfg. Co., New Holstein...Lauson
 Lyons Atlas Co., Indianapolis...Atlas
 Minn. Steel & Mch. Co., Minneapolis...Twin City
 Moline Plow Co., Moline...Moline-Universal
 National Tractor Co., Chicago...National
 Nilson Tractor Co., Minneapolis...Nilson
 Noble's Automatic Tractor Co., Kansas City...Noble
 Parrett Tractor Co., Chicago...Parrett
 Plano Tractor Co., Plano, Ill...Plano
 R & P Tractor Co., Alma, Mich...R & P
 Rock Island Imp. Co., Rock Island, Ill...Helder
 Russell & Co., Masillon...Russell
 Sexton Tractor Corp., Asbury Park, N. J., Sexton
 Square Turn Tractor Co., Chicago...Square Turn
 Velle Motors Corp., Moline...Velle
 Waterloo Gas Engine Co., Waterloo...Waterloo Boy
 Trojan Tractor Co., Waterloo...Trojan
 Wisconsin Farm Tractor Co., Sauk City...Wisconsin
 Pan Motor Co., Saint Cloud...Pan
 Interstate Tractor Co., Waterloo...Plowman
 (To be continued next week)

Sanford Truck to Build Addition

SYRACUSE, Feb. 18—At the annual meeting of the directors of the Sanford Motor Truck Co., it was decided to create a plant addition which will increase the floor space 50 per cent. This has been made necessary by the increase in business, and unfilled orders at present exceed \$270,000. The capital will be increased by the addition of \$100,000 in cash.

Car Dealer Becoming Dominant in Tractor Trade

(Continued from page 12)

wheels and yet use relatively small gears without sufficient pressure on the gears to bend the shafts or ruin the gears.

The Sexton uses a 48-in. wheel on the live rear axle. The gearset is a sliding design, quite different from that used in a motor car and having much larger gears. All of the gears are forged as in a motor car, and as compared with gears that are cast and have the teeth specially treated. The gearset is much larger than used in a motor car, but has all shafts carried on Hyatt bearings. The Sexton is a new tractor which is not in production.

The Four-Drive tractor, which took part in the tractor demonstrations at Fremont, Neb., last August, is present in practically the same design as seen at that time. This tractor drives through all four wheels and has the drive entirely enclosed. It is a shaft driven design to the front axle with a similar drive to the rear. It uses forged gears through Timken bearings and has everything enclosed. On every part of the drive are the imprints of motor car construction.

Keeping Out Dust and Water

The tractor that worked out the enclosed drive principle first is the Wallis, manufactured by the J. I. Case Plow Works, Racine, Wis., and sold by the Wallis Tractor Co. of the same city. This is one of the neatest tractor designs and is in the same form seen a year ago at the show here. It is a three-wheel design, with a single steering wheel in front. This tractor is unique in that it does not have a frame, the base of the engine forming the frame. The gear system is entirely enclosed and the

live rear axle uses 48-in. wheels. The engine and the complete tractor are very well worked out with the parts all enclosed and all precautions taken for keeping out dust and water.

The progress in tractors cannot be told in a short story. Too much has taken place during the past year. Too many new machines have come out, many of which have not yet been tried out. Among the new ones are:

Some New Tractors

The Belt-rail, as its name suggests, is a creeper type with two steering wheels in front. This has been developed by the Beltrail Tractor Co., St. Paul, by the interests that make Crex matting. This concern used 3600 horses on its farms where the special grass for making this matting grows. It required a tractor that could operate well on soft ground to do the work, and the creeper type is the result. The design has been well worked out, using a four-cylinder Waukesha engine, a two-speed transmission with Hyatt bearings, worm-and-segment steering, Bennett air cleaner, Dixie magnet, etc. Most of the 3600 horses on the crex farms have been sold and tractors have taken their place.

There is the Noble tractor built by the Automatic Tractor Co., Kansas City, Mo. This is a two-wheel job, to the back of which is coupled direct the farm machine to be drawn so that the operator sits on the plow or the binder and not on the tractor. It uses a four-cylinder, block, Continental engine.

There is the Acme, of the Acme Harvesting Machine Co., Peoria, Ill., with a four-wheel job in which you can take off the two rear or drive wheels and put a short creeper job on instead, just as

the bus man takes off the wheels of the bus and puts on sleighs for the winter.

The new J. T. tractor of the J. T. Tractor Co., Cleveland, Ohio, is a creeper type, with one creeper, bearing, as it does, a resemblance in this respect to the Cleveland tractor which went into production last April.

Fairbanks, Morse & Co., Chicago, the big railroad supply builders, have been manufacturing two models of tractors for some time, but most of them have been exported. These two models were shown for the first time in the West this week. Although kerosene designs they are very unusual. The larger resembles a railroad locomotive with the boiler part comprising the radiator with the twin cylinder engine lying on top of the boiler, and with the firebox part of the design enclosing the transmission system, the kerosene tanks and the control parts. There is a locomotive funnel through which the exhaust escapes. The smaller one is a more conventional tractor design.

Practically all of the established tractor makers are here. The J. I. Case T. M. Co., one of the leaders, is present with a complete line of its standard machines. The International Harvester Co. has its two models, Mogul and Titan. The Avery company has its line of large and small machines as well as special machines for cultivating corn. There are such other old names in the large tractor field as Advance-Rumely Thresher Co., Emerson-Brantingham Co., Minneapolis Steel & Machinery Co., Moline Plow Co., Rock Island Implement Co., Waterloo Gasoline Engine Co., Russell & Co., Joliet Oil Tractor Co., Hart-Parr Co., Huber Mfg. Co. and others that are given in the list of exhibitors.

Crowds Pack Kansas City's Motor Car Show

(Continued from page 7)

Show advertising is carried as far away as Denver, Arizona and Arkansas.

One big binding link between Kansas City's dealers and the country is the good roads tours that are staged each year, generally in late summer or fall.

Before the show the association sends letters to the various business associations asking merchants to use special automobile trims in their windows.

This year before and during the show the Kansas City Association ran \$10,000 worth of advertising in the newspapers to correct the public's false ideas of "economy" and to stimulate business generally. It paid. Sales are directly traceable to these ads. Prospects have said they had held off buying because they thought spending money would be unpatriotic.

As a merchandising exposition the Kansas City show has made wonderful

progress. The 1916 show was a dirty spectacle, littered with papers and peopled by listless salesmen and uncouth porters in overalls. It has all gone.

The show is as clean as that of Boston—which is America's model on this score. Several times a day a squad of porters, advancing like a line of soldiers, goes over the show with push-brooms and cleans it from end to end in a very few minutes.

Salesmen Alert

The salesmen are alert. Saturday night before the show opened a show salesmanship meeting was attended by more than 400 men. The story, printed elsewhere, tells how they learned in a few minutes the right and wrong ways of acting at a show. They have profited remarkably.

This meeting also demonstrated the

value of room in an exhibit. The result is that the dealers have tried to give as much room as possible, and the result is fine, considering that most of them have spaces only about 20 feet square.

This association, like some others, has a rule against the decoration of exhibits with rugs, palms, etc. The rule should be withdrawn and this modern merchandising practice encouraged.

There are 65 dealers in the car show with 76 makes of car. Twenty three trucks are shown. Only association members can buy space, unless the buyer handles accessories, of which there are quite a few exhibits.

As at all other shows this winter, one of the prime topics is car shipments. Efforts are being made now to get cars, because a good spring and summer business seems assured and the only problem is deliveries.

Repairshop Shortcuts

From The Motor World Roadman

NO. 1556—VALVE FACING DEVICE

A breast drill is held in a bench vise and a board with a V-shaped notch at the top is tacked to the bench. The valve stem rests in this notch and is held steady while the drill is turned. The support prevents chattering as the file passes over the valve. A set of 12 valves can be dressed with this simple device in 20 min.—G. H. Ecksteen, American Garage, Cleveland.

NO. 1557—PORTABLE REPAIR RACK

To avoid loss of time due to the misplacing of tools and parts needed in repair work the convenient rack here shown is used. It is mounted on castors and is easily moved directly to the job. All tools are kept together, and suitable shelves, drawers and hooks are provided for car parts necessarily removed during the work. Such a rack can easily be made up in any shop and will save much time and trouble.—Geo. H. Ainge, Springfield, Ohio.

NO. 1558—SOLDERING IRON

A soldering iron for use in places difficult of access, especially on the under side of horizontal surfaces, is made by drilling a $\frac{1}{8}$ in. hole diagonally through the copper to a point $\frac{3}{8}$ in. from the soldering surface. The hole is then completed to the surface with a $\frac{1}{32}$ -in. drill. When the iron is hot a piece of wire solder is inserted in the hole as far as the end of the $\frac{1}{8}$ in. bore. Pressure on the wire as the end melts forces the solder through the $\frac{1}{32}$ -in. aperture to the soldering surface. Minor repairs on radiators, etc., can be made with this tool without removing them from the cars.—H. R. Spangler, Alamagordo, N. M.

NO. 1559—GAGE FOR TRUING AXLES

To detect any defect in the bearing alignment of front axles the gauge here shown is both simple and effective. It consists of two rods of $\frac{3}{8}$ -in. cold rolled steel 3 ft. long, each provided with two cones reamed to a close sliding fit. These cones accurately center the rods in holes of $\frac{5}{8}$ to $2\frac{1}{2}$ in. diameter. The upper cone is held by a set-screw against the compressive action of a helical spring beneath the lower cone. Any bend in the axle is detected by gaging the parallelism of the two upright rods with an adjustable bar, while a twist is shown by sighting from one bar to the other to

see if they lie in the same plane.—Harmon E. Wirebaugh, Wilson Motor Car Co., Canton, Ohio.

NO. 1560—ONE MAN BLOCK

An adjustable block for Fords or other light cars which automatically takes its position as the car is lifted by hand may be made wholly of discarded parts of cars. Its self-acting feature enables one man to lift the car and place the block in one operation. The stand is one-half of a differential housing, in which is placed the ratchet from an old jack. This is held at any height by a dog forged from a piece of scrap steel and held in mesh by a small spring. The ratchet is normally held at its highest position by a spring easily compressed by hand. The ratchet is pushed down and the block placed beneath the axle. As the car is lifted the ratchet follows it up to any required height. To lower the car a small coiled spring from an old fan belt is slipped down on the lever of the dog, which causes the latter to disengage the ratchet when the weight of the car is relieved by a slight lift.—H. R. Spangler, Alamagordo, N. M.

NO. 1561—SHAFTING HANGERS

In many shops the construction of the building is such that the pulley hangers cannot be attached directly to the ceiling. An excellent installation in shops of this nature may, however, be made by attaching the hangers to wooden beams, that are in turn supported on pipe standards. The standards should be 5-in. pipe, bolted to the floor with pipe flanges. The wooden beams are secured to the pipes by U-bolt clamps in the manner illustrated. A similar standard may be used to support the motor. In an installation of this nature, it has been found that vibration is practically eliminated, and all parts of the belts and shafting are exceptionally accessible, thus reducing maintenance cost.—C. B. Crawford, Lawrence Motor Co., Pittsburgh.

NO. 1562—RADIATOR REPAIRING DEVICE

A radiator leak may be quickly repaired by a simple piece of mechanism consisting of two steel discs just large enough to fit into the intake and outlet. Between these is a rubber gasket which is compressed by a thumb-screw which forces the discs together. As this thumb-screw is tightened the gasket is forced out at the edges and seals the hole.—

F. R. Crocker, Mawhorter Radiator Repair Co., Pueblo, Col.

NO. 1563—BODY LIFTING

The top irons on the Ford car are so placed as to be convenient for attachment of a body lifting hoist and permit the body to be lifted without tipping. The hoist is a cross-bar of steel carrying four chains about 5 ft. long and ending in a steel ring. The chain block is attached to the center of the cross-bar and the ring slipped over the four top irons. By means of this device one man can readily remove or replace the body.—Ford Motor Co., Detroit.

NO. 1564—GEAR PULLER

A very powerful pinion puller and attachment designed to pull a gear setting too close to the crankcase to admit the jaws of an ordinary puller is here shown. The jaws are ground off at X at an angle that allows them to start between the crankcase and gear. The puller screw C is lightly tightened against the shaft and the clamp B placed around the jaws at joint A. The bolts in clamp A are then tightened. This drives the wedge-shaped jaws between the gear and case and loosens the gear. When the jaws have been drawn down against the gear the pulling is completed by screw C.—Carl Tinkham, Platt-Fawcett Motor Co., Denver, Col.

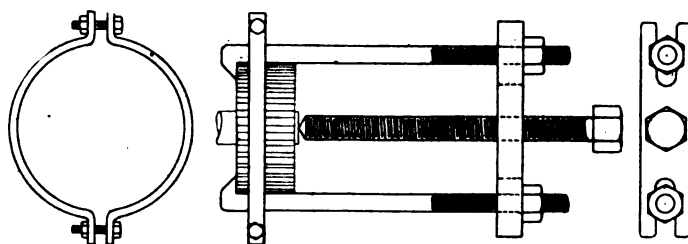
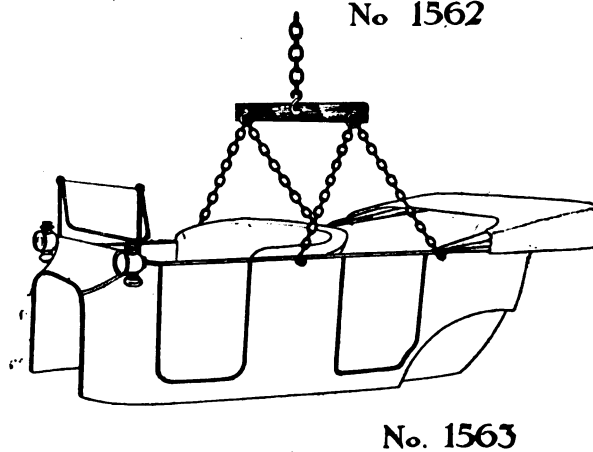
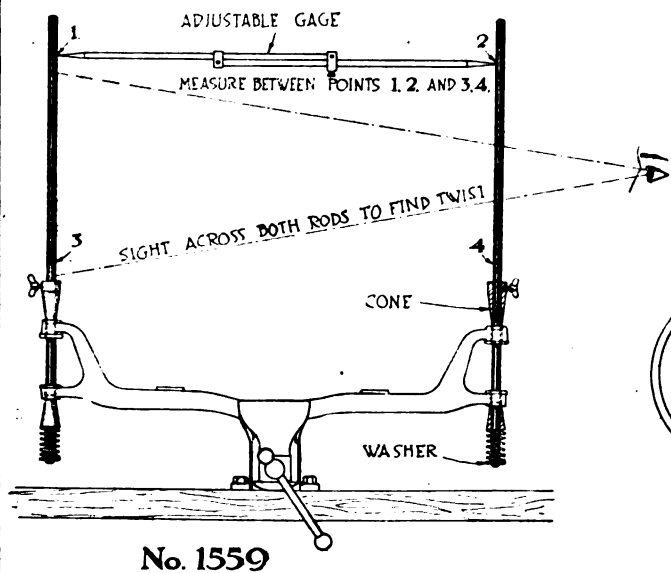
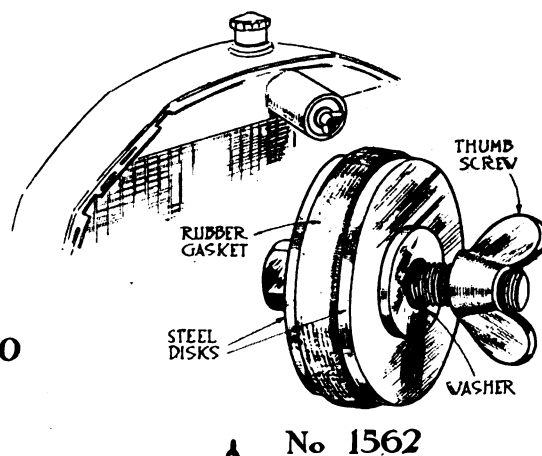
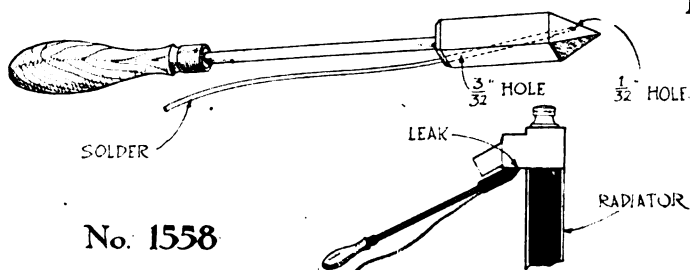
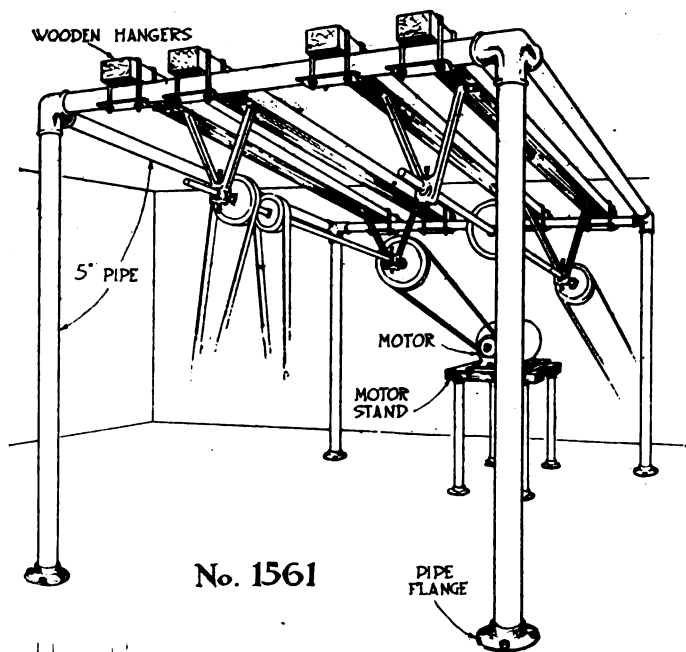
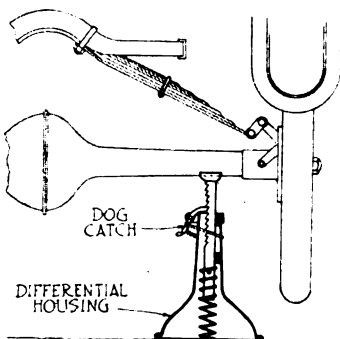
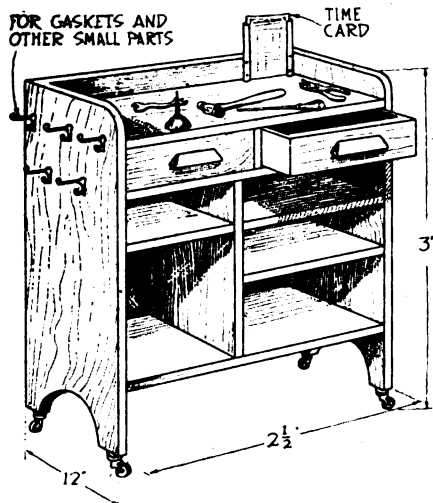
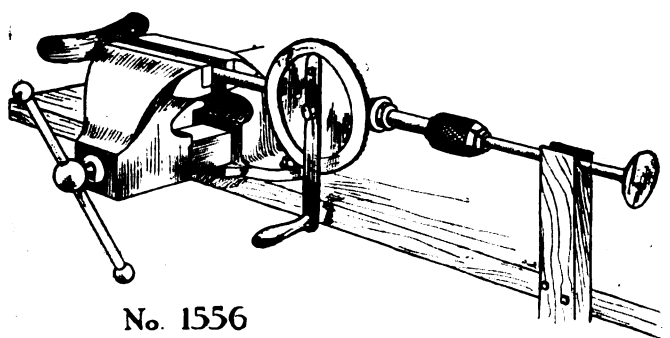
PISTON REPLACEMENT KINK

In fitting new pistons into old cylinders, or old pistons into new cylinders, the clearances observed must be different than when new pistons are fitted into new cylinders, or vice versa. For example, when a seasoned piston is being fitted into a green cylinder casting, the clearance should be much less than is common practice, in most instances being about .002 of an inch.—Moon Service Station, Pittsburgh.

Scrap Metal Prices

NEW YORK, Feb. 14—Following are the prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age*:

	Cents per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy.....	17.00 to 17.25
Brass, light.....	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow rod brass turnings.....	13.00 to 14.00
No. 1 red brass or composition turnings.....	19.00 to 20.00
Lead, heavy.....	6.50
Lead, tea.....	5.25
Zinc.....	6.00



Control of Exports and Imports Causes No Alarm

Expected That Licenses Will be Forthcoming—Plenty of Rubber on Hand for Tires

NEW YORK, Feb. 16—The president's proclamation taking over control of all exports and imports through a licensing system is not viewed with great alarm by the automobile industry. The proclamation itself specifically states that it is not to be considered as in the nature of an embargo on either exports or imports, but that it is designed as a regulatory measure pure and simple.

Under the terms of the proclamation certain products deemed of essential value in the winning of the war cannot be imported or exported except under license. Where products are vitally necessary to the carrying on of the automobile industry, it is not anticipated that great difficulty will be encountered in obtaining licenses. This applies to imports.

In so far as exports are concerned, it is pointed out that the industry has been suffering for the want of tonnage for some time, and that such additional restrictions as may be imposed under the terms of the proclamation are not likely to make a great difference. Motor cars and trucks are as essential to the Allies as they are to the United States. Space must be found for them in vessels and the opinion of prominent exporters is that licenses will be forthcoming when and as needed.

One serious aspect of the situation which chiefly concerns exporters is that if it should be decided to limit very strictly the exportation of motor cars and trucks to such countries as South America, South Africa, Australia, etc., a hardship would be imposed because of the virtual severance of business relations which have taken years to build up.

It seems likely that the War Trade Board through its licensing system will to a certain extent limit the carrying of certain products which may be termed non-essential by ocean-going vessels; just what this curtailment will amount to cannot be stated at this time.

In general, however, a feeling prevails that the proclamation is in effect a gigantic checking measure with the aid of which it will be possible to make more efficient both American shops and those of her Allies.

For example, if foreign governments should request licenses for the importation of great quantities of any one raw material, this would indicate to American authorities, who know of present production possibilities abroad, an expansion of facilities with increased production.

This information could, in turn, be used to advantage in perhaps reducing production of similar articles by a certain percentage on this side. In other words, it would tend to eliminate dupli-

cation of effort and promote efficiency in that it would indicate where certain raw materials might be fabricated in the country of their origin to better advantage, perhaps, than in some other country.

Exports of motor cars and trucks reached new high levels in 1917. During the year a total of 65,086 cars and 14,284 trucks were sent overseas. Though this total of nearly 80,000 vehicles seems a lot, exporters point out that the shipping space required for them is very small when compared with the total number of ships afloat. Allowing about 6 tons, cubic measurement per car or truck, the entire lot could be stowed away in 96 ships.

Obviously, however, a ship cannot be completely loaded with motor cars or trucks. The space might all be filled but the carrying capacity would not be reached by a considerable percentage.

Neither rubber importers nor the tire concerns can see grave consequences as a result of the proclamation. The rubber people have been under government control since last December and it is thought that these new regulations will not have great effect.

There is at present a sufficient quantity of rubber on hand, including such as is now afloat, to last for three or four months. There has been no difficulty in securing licenses to date and none is anticipated.

Most of our rubber comes from British possessions in the Orient, 135,000 lbs. of the 170,000 lbs. imported in 1917 coming from such sources. In 1917, rubber imports were 43 per cent greater than in 1916. During the year 1917 a total of 333,373,711 lbs. were imported and of this 215,146,375 lbs. came from British possessions. During the same period, tires to the value of \$12,330,201 were exported, England being the heaviest buyer with a total of \$2,636,654. Canada was next and France third.

The proclamation specifically covers, and requires licenses for the importation and exportation of the following: "All contrivances for or means of transportation on land or in the water or air, machines used in their manufacture or repair, component parts thereof, materials or ingredients used in their manufacture and all instruments, articles and animals necessary or convenient for their use, rubber and its products, derivatives and substitutes, cotton, glass, all metals, minerals, mineral oils, ores and all derivatives in the manufacture thereof, all machinery, tools, dies, plates and apparatus and materials necessary or convenient for their manufacture."

It is stated that the primary and direct intent of the measure is to increase the tonnage available for the shipment of

men, supplies and materials essential in the conduct of the war; it is planned that this shall be done by reducing to the minimum the space allotted for the importation and exportation of raw materials and finished products not immediately essential in the conduct of the war.

Push "Return Load" Work

WASHINGTON, Feb. 18—The Highway Transport Committee is working out a plan under the "return loads" system to relieve congestion east of the Mississippi River. The plan is to first establish return loads through Boston to Washington, then New York to Buffalo and next Philadelphia to Chicago taking in Cleveland, Detroit, Indianapolis and Cincinnati. At first the aim will be only to include the large cities but later it is planned to include the smaller towns also. The committee is working through the Chambers of Commerce of the various cities on the routes pointing out to them the need of getting together the man with goods to ship and the man with a truck empty or partly filled. Letters are going forward to-day which aim to soon have the system in operation. George P. Wilson, secretary of transportation for the Allied Trades Body, Philadelphia, will actively co-operate with the committee.

St. Louis Show Opens

ST. LOUIS, Feb. 18—The Eleventh Annual St. Louis Automobile Show opened to-night with an exceptional attendance of dealers from the south and southwest, where the highest degree of optimism obtains as to the season's business. This year the national and Allies' flags predominate in the decorations of the Exhibit building, once the Southern Hotel but now opened as a permanent industrial exhibit and convention building. The space limitations prevented an exhibit of trucks, but most truck dealers are keeping open house at their salesrooms and some have rented nearby stores for exhibits.

On two afternoons soldiers in uniform will be admitted free and the automobile dealers and employees at the show who are members of the Home Guards will wear their uniforms. On two other afternoons special arrangements will be made for ladies. All afternoons will be on "matinee price" of 25 cents and war tax until 6 p. m.

Two special luncheons will be held during the show. One will be on Tuesday noon when Ray W. Sherman, editor of Motor World, will speak, and the second Wednesday noon when E. LeRoy Pelletier, advertising manager for the Reo car, will be the speaker. Both luncheons will be open to members of the local organizations and visiting dealers.

No Increase in Ford Prices

DETROIT, Feb. 19—Despite the fact that dealers all over the country are advertising an increase in the price of Ford cars after March 1, Frank Klingensmith, treasurer of the Ford Motor Co., denies this. He says that nothing of this nature has been decided on.

Thaw Releases Accumulated Car Freight

Permits Delayed Drive-Aways from Factories—Also Effects Increase in Coal Production—Railroad Congestion Limits Car Output

DETROIT, Feb. 16—One of the most important developments of the week here and in this vicinity is the effects of the thaw. This has tended to open the roads westward, so that drive-aways are starting again from nearly all the factories. Up to this week the only gateway out of Michigan was by way of Detroit and Toledo, and this was only kept open due to the continual passage of trains of trucks for the government, followed by drive-aways of commercial cars and passenger cars.

The coal situation has also been relieved by the thaw, and general production is on the increase. Probably the most noticeable fact as far as production is concerned is the necessity of Ford reducing his passenger car output by 50 per cent in order to take care of the big submarine destroyer program which he has undertaken. This means that production has dropped to 1500 cars a day instead of 3000, and since the demand has always been equal to or slightly in excess of the output, a tremendous market is open throughout the country for low-priced cars. In other words, due to the Ford output reduction, there will be 1500 people per day desiring low-priced cars who will not be able to buy Fords.

The Anderson Electric Car Co. is doing a considerable amount of government work at the present time, particularly on truck No. 1 and No. 2 government specifications. They are also making a number of electrical industrial trucks for the government. The passenger car output at the present time is about ten a day. They report business very good, particularly throughout the East, and excellent in Washington, a number of people from out of town having bought cars in this city. They have sold 125 cars in Washington during the past year, driving the electrics over the road as far as Toledo.

The Cadillac Motor Car Co. is experiencing difficulty in shipping cars, due to the freight congestion. They require from thirty to forty freight cars a day, but have been only able to secure ten or twelve a week. They are driving all eastern deliveries away, but it is impossible to drive west at present. They report labor plentiful and are having no difficulty in getting all they need. All the government work done by the Cadillac company is carried on in a separate plant, thereby not interfering with the regular production. They are scheduled to begin building Liberty engines in May or June.

The production of the Maxwell tractor and the proposed large capacity Maxwell truck is being held up pending the arrangement of the factory to take care of government work. There is a great amount of government work coming into the Maxwell-Chalmers plant, resulting

in the rearrangement of production to a considerable extent.

The inability of the Commerce Motor Truck Co. to deliver cars or to secure freight cars is responsible for the great curtailment of the output of this company. It is now manufacturing six cars a day, whereas the output to fill orders would be fifteen per day.

The production of Dodge Brothers from the beginning of the concern to date is 225,000 cars. Production is not being curtailed at the present time, although work on war contracts has been started. They are unable to get enough freight cars to make deliveries, and drive-aways have been cut down owing to the condition of the roads in the West being impassable. However, drive-aways through Toledo and points east and south are going ahead without delay, and it is possible also to reach all points north.

The Republic Truck Co. has stepped up to a production of eighty to eighty-five cars a day of the commercial class, indicating that the manufacture of war trucks is not interfering materially with the regular production.

The Federal Motor Truck Co. has received a second order for several hundred 3-ton chassis for the Signal Corps. The first order, which was also for several hundred trucks, has been completed. The monthly production of the company is about 300, about 60 per cent of which is of the 2 and 3½-ton capacity and the other 40 per cent quite evenly divided among the 1, 1½ and 5-ton trucks. At the present time the company is driving away about thirty-six trucks a week to Cleveland, Indianapolis and Toledo, the moderate weather helping very much in facilitating these drive-aways. They report business very good all over the country.

N.A.D.A. Opens Offices in St. Louis and Washington

ST. LOUIS, Feb. 18—The National Automobile Dealers' Association will open branch offices in charge of assistant secretaries in St. Louis and Washington. The Washington office will be in the building occupied by the National Automobile Chamber of Commerce.

A legislative committee will be appointed for each state to report to the association on pending bills affecting selling, making or use of motor cars.

Memberships will be open to individuals as well as firms.

A protest will be made to Director General of Railroads on the blanket embargo on road materials. Wisconsin will be cited as a case in point; \$47,000,000 bonds have been sold for road work and this money cannot be used.

The roads campaign will be made as a means of relieving the freight problem, it

being shown that over good roads and in good weather motor car "drive aways" from the factory can be extended considerably more than the arbitrary 500 miles.

Automotive Idea Is Spreading Very Fast

Several New York Passenger Car Distributors Add Trucks—Others Planning To

NEW YORK, Feb. 18—Carrying along a movement which started late last fall and which evidences better than can anything else that even in the bigger cities motor car dealers are turning naturally to the automotive idea, still another New York distributor, who heretofore has handled nothing but passenger cars, has added motor trucks.

The Cutting-Larson Co., Oldsmobile distributor, is to handle not one, but two lines of trucks and will distribute them over a considerable territory, including New York and the New England states. These are the Master, produced by Master Trucks, Inc., Chicago, and the Bessemer, made by the Bessemer Motor Truck Co., Grove City, Pa.

An indisputable indication of the rapidly growing trend along lines to enlarge existing passenger car business by the addition of other automotive apparatus came during the recent New York show when the Whiting Motor Co., Mercer distributor, let it be known that it would hereafter distribute International trucks. Since then, investigation reveals, quite a long list of prominent New York dealers have been seriously considering a similar step.

Plenty of Gas, Says Reeves

ST. LOUIS, Feb. 18—Alfred Reeves, manager of the National Automobile Chamber of Commerce, was the speaker at a dinner Thursday of members of the St. Louis Automobile Manufacturers and Dealers' Association. He devoted almost his entire time to the gasoline situation, of which he declared there was a surplus of a million gallons a year, and to the banking problem, which he said had about been solved by the bankers accepting the motor car dealers' paper and other securities. He congratulated the western dealers on their optimistic attitude toward the spring and summer trade.

Detroit Branch for Harroun

WAYNE, MICH., Feb. 14—The Harroun Motors Corp. will shortly open a factory branch in Detroit on automobile row, with R. H. Schmittiel as manager.

Lauson Tractor Names Distributors

NEW HOLSTEIN, WIS., Feb. 18—Two more distributors for the Lauson tractor have been appointed by the company. They are: C. U. Williams Son & Co., Bloomington, Ill., for northern Illinois, and T. G. Young, Seattle, who will distribute the tractor in Washington, Montana and Idaho.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Henry Goldman has retired from the executive committee of the Studebaker Corp., Detroit, but will remain a director of the company. **Waddill Catchings**, of Goldman, Sachs & Co., will succeed him on the committee.

C. W. Price, president of the Auto Devices Co., St. Louis, has resigned and will head the sales department of the Osgood Lens & Supply Co., Chicago. He will succeed **A. C. Fach**.

Charles Oostdyke has been appointed director of purchases for the Hudson Motor Car Co., Detroit, succeeding **A. Barrett**, who is treasurer of the new Essex Automobile Co., an offshoot of the Hudson company. **Oostdyke** was formerly purchasing director for the Cadillac Motor Car Co. and later a manufacturers' agent here.

Clark H. Tenant, for many years associated with the iron and steel industry of Milwaukee and suburbs, has become assistant superintendent of the ordnance plant established at East Moline, Ill., by the Root & Vandevort Co. He already has assumed the new duties.

Frank H. Smith has joined the sales forces of **Harry Newman**, **Maxwell** and **Chalmers** distributor in Chicago, where he will act as special sales representative in the wholesale department. He formerly was special traveling sales representative for the Studebaker, **Lozier**, **Chalmers** and the **Hal Motor Car Co.**

John Boe, for three years western sales manager for the **Mitchell** factory, has been made president of the **Mitchell Automobile Corp.** of Missouri at St. Louis. He succeeds **Wesley Stanger**, resigned. The appointment of **Dandy W. Hudgings** as retail sales manager for the company is announced.

D. Donnelly, recently sales manager for the **Weber Motor Car Co.**, St. Louis, has been made general manager of the **Supreme Motor Co.**, Stutz distributor, of that city.

Wastell Gray, St. Louis, is the new manager of the **Pierce-Arrow** truck department of the **Western Automobile Co.** He formerly was with the **Mack** branch.

James A. Harris, Jr., for many years advertising manager of the **White Co.**, Cleveland, has resigned to accept a commission as captain in the **Quartermaster Corps**. Captain **Harris** has already assumed his military duties, having been assigned to **Mechanical Repair Shop Unit No. 305**. He will be succeeded as advertising manager by **Millard H. Newton**, who has been connected with the company's advertising department for the past five years.

E. V. Swanstrom has resigned from the sales department of **Findelsen & Kropf Mfg. Co.**, Chicago.

J. M. Homs, manager of foreign sales of the **Four Wheel Drive Automobile Co.**, Clintonville, Wis., has resigned to engage in the exporting business in New York. **C. S. Thompson** has been appointed to succeed him.

F. C. Seegar has been appointed Michigan representative of the **Doehler Die-Casting Co.**, Brooklyn, with headquarters in Detroit.

S. E. Knauss has been promoted to assistant-to-the-president of the **Harry Newman-Stratton Co.**, Chicago. He was formerly wholesale representative.

M. L. Heminway, formerly sales manager of the **Davidson Rubber Co.**, Boston, has been appointed secretary of the **War Service Committee of the Rubber Industry of the U. S. A.** His office will be with the **Rubber Assn. of America, Inc.**, 17 Battery Place, New York.

Norman G. Wilson has been appointed sales manager of the Philadelphia branch of the **Stanley Motor Carriage Co.** For the last two years he has been in charge of the **Eethlehem, Pa.**, branch of the **Packard Motor Car Co.**

W. B. Cochran has been appointed western sales manager of the **United States Motor Truck Co.** with headquarters at **San Francisco**. He will have charge of allotting territories and appointing dealers throughout the west.

H. M. Ross has been appointed district sales manager for the **United States Motor Truck Co.** in the central west. He will make his headquarters in **Chicago**.

P. D. Sampson has been placed in charge of **U. S. truck sales** in **Indiana**, **Ohio** and **West Virginia**. He will make his headquarters at the **Seyern Hotel**, **Indianapolis**.

Deering Marshall has been elected vice-president of the **Jones Motor Car Co.**, **Wichita, Kan.** **John Engstrom**, local lumberman and capitalist, is also a new director of the company.

James Levy, **Chicago**, has taken on the **Fulton truck** for northern **Illinois**, from **Springfield** to the northern state line, and parts of **Wisconsin** and **Indiana**. **Levy** is the distributor of the **Premier** and **Chalmers** cars for **Chicago**.

W. B. Cochran, formerly manager of the **Pacific Coast** branch of the **General Motors Truck Co.**, has been appointed western sales manager of the **United States Motor Truck Co.**, **Cincinnati**. He will have his headquarters in **San Francisco**.

H. M. Rose has been appointed district sales manager of the **United States Motor Truck Co.**, with headquarters in **Chicago**. He was formerly connected with the **White**, **Federal Motor Truck** and **International Harvester** companies.

C. S. Pope, formerly of the engineering department of **Dodge Brothers**, has been appointed chief engineer of the **Elgin Motor Car Corp.**, **Chicago**.

Tractor Demonstrations Delayed by Railroads

Congestion and Lack of Adequate Shipping Facilities Given as Reasons

KANSAS CITY, MO., Feb. 13—The question of definite arrangements for the 1918 tractor demonstrations has been delayed by the committee which has this work in charge for the **National Implement and Vehicle Association** which conducts the demonstrations. The committee held a meeting here to-day and decided that because of the congested conditions of the railroads and the uncertainty of securing adequate railroad equipment for shipping tractors it was impossible definitely to decide on any demonstrations.

Up to the present no time nor place for holding such demonstration has been selected, although it has been decided to hold a tractor demonstration with rigid rules governing same so that complete information regarding the performances of the different machines can be had and an official report published. If conditions change and demonstrations are possible they will be held.

It is certain that the demonstrations will not go to **Fremont, Neb.**, this year as they have in past years. **Cleveland** has been discussed as a probable center for the demonstrations, but it is questionable if sufficient land can be secured for plowing.

A delegation from **Salina, Kan.**, an enterprising city in the western half of the state, advanced the claims of that area for the tractor demonstration. It is also understood that some centers of **Dakota** are anxious to secure the demonstrations. There has been some question that these demonstrations should go to the **Twin Cities**, but the ground is a little rough and hilly.

Motor Securities Quotations

	Bid	Asked		Bid	Asked
*Ajax Rubber Co.....	52	55	*Maxwell Motor Co., Inc., com..	28	29
*J. I. Case T. M. Co., pfd.....	84	86	*Maxwell Motor Co., Inc., 1st pfd.	61	64
Chalmers Motor Co., com.....	6	8	*Maxwell Motor Co., Inc., 2nd pfd.	22	24
Chalmers Motor Co., pfd.....	25	40	Miller Rubber Co., com.....	140	150
*Chandler Motor Co.....	80	84	Miller Rubber Co., pfd.....	95	98
Chevrolet Motor Co.....	118	121	Packard Motor Car Co., com....	98	103
*Fisher Body Corp., com.....	26	35	Packard Motor Car Co., pfd.....	91	94
*Fisher Body Corp., pfd.....	75	85	Paige-Detroit Motor Car Co....	18	19
Fisk Rubber Co., com.....	51	55	Peerless Truck & Motor Corp....	18	18½
Fisk Rubber Co., 1st pfd.....	98	103	Portage Rubber Co., com.....	112	114
Fisk Rubber Co., 2nd pfd.....	60	70	Regal Motor Car Co., pfd.....	..	..
Firestone Tire & Rub. Co., com..	96	98	†Reo Motor Car Co.....	17	18½
Firestone Tire & Rub. Co., pfd..	96	99	*Saxon Motor Car Corp.....	9	11
*General Motors Co., com.....	130	134	Springfield Body Corp., com....	..	..
*General Motors Co., pfd.....	83	85	Springfield Body Corp., pfd.....	..	..
*B. F. Goodrich Co., com.....	46	47	Standard Motor Construction Co.	9½	10½
*B. F. Goodrich Co., pfd.....	93	100	Standard Parts Co.....	..	89½
Goodyear Tire & Rub. Co., com..	143	145	*Stewart-Warner Speed, Corp....	56½	59
Goodyear Tire & Rub. Co., pfd..	99	101	*Studebaker Corp., com.....	50½	52
Grant Motor Car Corp.....	2	3	*Studebaker Corp., pfd.....	91½	97
Hupp Motor Car Corp., com.....	2½	3½	Swinehart Tire & Rubber Co....	..	37
Hupp Motor Car Corp., pfd.....	75	80	United Motors Corp.....	24½	25
International Motor Co., com....	14	17	*U. S. Rubber Co., com.....	57	58½
International Motor Co., 1st pfd.	40	50	*U. S. Rubber Co., pfd.....	99	101
International Motor Co., 2nd pfd.	17	20	*White Motor Co.....	43	44
*Kelly-Springfield Tire Co., com.	44	47	*Willys-Overland Co., com.....	18½	19½
*Kelly-Springf'd Tire Co., 1st pfd.	75	81	*Willys-Overland Co., pfd.....	79	80
*Lee Rubber & Tire Corp.....	13	15	*At close Feb. 16, 1918. Listed N. Y. Stock Exchange. †Par \$10 per share.		

U. S. Shipyards Need Skilled Mechanics

Will Require 250,000 Experienced Men Next Month—Those Qualified Urged to Enroll at Once

WASHINGTON, D. C., Feb. 18—The United States Shipping Board needs men. Although the immediate requirements have been filled, according to Secretary of Labor William B. Wilson, who last week stated that there was no pressing present demand, it is stated that next month there will be an urgent need for several hundred thousand men to work in producing the fleet of ships which is to be used in transporting American muscle and American food for the aid of America's allies.

It is urged that mechanics enroll at once with the nearest agent of the United States Public Service Reserve of the Labor Department or with the local enrollment agent of the various State Councils of National Defense. They are instructed to retain their present positions after enrolling until they are notified when and where to apply for work. Chairman Edward N. Hurley of the United States Shipping Board, who is also president of the Emergency Fleet Corp., says: "We will require 250,000 skilled mechanics to help the other loyal men now in the yards to build ships so fast that supplies can be furnished to our boys in the trenches who are making the supreme sacrifice for their country."

Men who have had experience in the following lines are particularly needed:

Acetylene and electrical welders	Loftsmen
Asbestos workers	Template makers
Blacksmiths	Machinists and machine hands, all sorts
Anglesmiths	Helpers
Drop-forging men	Painters
Flange turners	Plumbers and pipe fitters
Furnace men	Sheet-metal workers
Boller makers	Coppersmiths
Riveters	Shipfitters
Reamers	Structural iron workers
Carpenters	Riveters
Ship carpenters	Erectors
Dock builders	Bolters up
Chippers and calkers	Other trades
Electrical workers	Cementers
Electricians	Crane men
Wiremen	
Crane operators	
Foundry workers	
Laborers, all kinds	

McLaren President of Ajax

NEW YORK, Feb. 16—H. L. McLaren was elected president of the Ajax Rubber Co. at the annual meeting Wednesday. He is also president of the Racine Rubber Co., Racine, Wis., which is affiliated with the Ajax company. Fred E. Dayton was elected secretary and Stuart Webster vice-president. The retiring directors were re-elected for 3 years, and L. T. Vance and Louis C. Detribats will continue as vice-presidents and Harold W. Stimpson as treasurer.

The regular quarterly dividend of \$1.25 a share, payable March 15, was declared at the meeting.

If your copy of MOTOR WORLD does not reach you on the day it usually arrives, wait a day or two before writing about it. It is on the way. These days the railroads are having a hard time and finding it almost impossible to adhere to schedules because of the extraordinary amount of freight which must be handled. Even the United States mails are delayed. The post offices have had hundreds of expert sorters enlist and poor help has taken their places. So wait a few days before you write us that your copy has not been received.—MOTOR WORLD.

State of Ohio to Help Farmer Purchase Tractors

DAYTON, Feb. 16—In order to get the very highest percentage of returns from the fertile valleys of Ohio every inducement is being made by the authorities for the farmer to obtain tractors.

In brief, 1500 tractors are to be placed this year. The state will guarantee the banks against loss of funds which are advanced after due recommendation for the farmer to supply himself with a tractor of his choice. At least \$1,000,000, perhaps \$2,000,000, will be diverted from bonds to small banks to aid the movement.

A first payment of 25 per cent of the cost will be asked of each farmer. After that very lenient terms running from one to three years will be granted for payment and in special cases even a longer time. Small banks can rediscount to larger and these in turn to others with the Farm Loan Fund of Federal Reserve to back up the whole propaganda.

It is estimated that there is only one man to every seventy-five acres of tillable soil. The tractor will make possible the increase of acreage, though the manpower should not be increased over last year.

Metz to Continue Service

WALTHAM, MASS., Feb. 18—The Metz Co. has sold two of its buildings and will concentrate much of its activities on government contracts in a new building which has just been erected. Although the company will curtail materially its output of cars, it plans to maintain a service of supplying parts for all Metz cars now in use or to be produced for the present season.

Newark Opens Its Show

NEWARK, N. J., Feb. 16—The tenth annual Newark show opened to-night in the First Regiment Armory to record crowds. The exhibit is being staged by the New Jersey Automobile Exhibition Co., and there are 186 cars exhibited by 86 dealers.

90,000 Trained Men Wanted by Government

Army Needs Magneto and Tire Repairmen, Motor Truck Drivers and Motorcycle Riders

WASHINGTON, Feb. 15—The government is in urgent need at present of more than 90,000 trained men who must be familiar with motor vehicle work. The numbers required in a few of the important divisions are as follows:

Chauffeurs	53,124
Repairmen	30,900
Magneto repairmen	218
Tire repairmen	156
Truck drivers	465
Motorcycle riders	2,534

This represents but a small fraction of the great armies of trained workmen that is needed for the army. From the electrical trade approximately 22,443 men are needed.

There is a demand for approximately 17,000 radio operators. Nearly 5600 commercial engineers, electrical engineers and chemists are required. There is need for 29,400 workers, including metal workers, general machinists, tool makers, etc. Over 6000 railroad men are needed. Over 1800 steam engineers are needed. Approximately 14,400 for wood workers and airplane manufacture are required. These figures represent only a small idea of the educated working force needed back of the line.

Ford Lays Keel of First Sub-Chaser

WASHINGTON, D. C., Feb. 16—Henry Ford has laid the keel for the first of the new type patrol boats to be built in the Ford plant. The side frames are ready to go up.

Secretary Daniels has made public a number of details regarding the Ford contract. Ford offered by letter to build naval vessels in his plant in December. A few hours after the letter was received a telegram was sent requesting Ford to come to Washington for conference. A few days later, Ford and his staff went into consultation with officials of the navy, following which the Ford party went to Philadelphia to inspect shipyards and plants. They returned to Washington for further consultation, and on Dec. 31 were given the preliminary plans and specifications of the boats to be built.

Several days later complete plans were delivered to Ford, who on Jan. 15 telegraphed his proposition to Secretary Daniels, and in return received a contract for a large number of the boats. Rear Admiral C. W. Dyson, representing the Bureau of Steam Engineering, and Naval Constructor Robert Stocker, representing the Bureau of Construction and Repair, are in Detroit assisting Mr. Ford.

The Ford Company, according to Secretary Daniels, is pushing construction at a rate that will probably exceed all previous records for building steel naval vessels.

Chicago-to-New York Motor Service Ready

**Rates Will Be Same as for Express
—Freight to Be Delivered at
Door of Consignee**

CHICAGO, Feb. 18—Details of the arrangements for the Chicago and New York truck service of the Master Truck Transportation Co. indicate very thorough preparation for maintaining the movement of the truck trains on schedule.

This new service is to operate a freight train line between Chicago, Buffalo and New York, and the first fleet of 24 2-ton Master trucks is expected to be ready for the pioneer trip as soon as the weather conditions permit. Some idea of the thoroughness of the preparations will be gained from the fact that the fleet will have with it one truck devoted entirely to carrying oil and gasoline for the convoy, another is equipped as a kitchen to prepare meals for the drivers and mechanics en route, while a third will carry tents and sleeping equipment for the men. It is designed to eliminate the necessity for depending upon any hotel or restaurant accommodations.

According to General Manager Goldman, this method of freight transportation will be sufficiently popular for it to become general with other truck concerns, as already the new company just formed has had requests from more Chicago and New York manufacturers to make deliveries between the two points than a fleet three times the size could handle.

All of the hauling will be done under contract, and there will be no "less-than-truck-load" shipments taken. Further, these full loads must all go to one destination. There will be no intermediate stations for the present, shipments being taken only for Buffalo and New York delivery at first. Officials announce that contracts have been signed to insure full loads for the trucks on the return trip.

The trucks will run in convoy formation, and 10 or 11 hrs. will constitute a day's run. The drivers that start with the trucks will continue with them throughout the trip. The character of the freight to be handled will include everything that can be moved by a truck of this capacity.

Rates for hauling will be the same as for express, but there will be the added feature that the power that carries the shipment across the country will deliver it at the door of the consignee. Present plans do not include way stations for concentrating freight or for unloading for further distribution. By handling all this business under contract there will be no necessity for interstate commerce regulations.

One feature of the truck will be a pneumatic tire equipment, with the use of which a speed of 25 to 30 m.p.h. is anticipated. Special changes in construction to permit of this speed have

been made. In addition to the 2-ton internal gear drive, there will be also probably some 3½-ton worm-drive trucks in service. All will have special bodies of the stake type, with tarpaulin covers, the loading capacity being 12 by 6 by 6 feet.

Detroit Used-Car Show Sold 1 Per Cent of Attendance

DETROIT, Feb. 18—The Detroit used-car show, which closed last week after a 9-day run, has been highly successful. One hundred and fifty used cars were sold to an attendance of 15,000, which shows that 1 per cent of the show visitors have been buyers. This is a very successful record. Eleven distributors of passenger and commercial cars exhibited. H. H. Shuart, who ran the show, states that a large number of sales were made to people in the rural districts surrounding Detroit, and a large number of the cars bought by the farmers are to be converted into trucks for moving light loads of farm products to marketing points. The dealers who exhibited were: Thomas J. Doyle (Dodge), Moritz-Mullin Co. (Commerce and Signal trucks), Scripps-Booth Corp., Simons Sales Co. (Overland and Willys-Knight), Miller-Judd Co. (Liberty), Wetmore-Quinn (Paige), Chevrolet Motor Co., Bemb-Robinson Co. (Hudson), Packard Co., Studebaker Corp., Frank Gmelin (Briscoe and Monroe). Thirteen accessory firms exhibiting were Rite-Way Polish Co., Lawrence Welding Co., Twin-Fire Sales Co., Toledo Double Tread Co., Englander's Slip Covers, E. A. Bowman, United Electric Service, Gates Half Sole Tire Co., Automobile Supply Co., Universal Battery Service, John H. Holmes Co., James G. Pierce Corp. and N. J. Kleefus.

Maiabohm Prices Increased

RACINE, WIS., Feb. 16—The Maiabohm Motors Co. will increase the factory prices of all cars shipped after March 15. Two new body styles, four new color options and a new upholstery option have been announced. The price changes are:

Model	New Price	Old Price	Increase
"A" Roadster.....	\$830	\$795	\$35
"B" 4-pass. Phaeton.....	1050	975	75
"B" Sedan.....	1650	1375	275

The new body styles are a 5-passenger touring for the Model "B" chassis, to sell for \$1,050, and a 2-passenger speedster Model "A" to sell for \$830. The color options include deep maroon, powder blue, tourist khaki and battleship gray. An option of Spanish or black upholstery is now given for all open models.

R. E. Mills Passes Away

BLOOMFIELD, N. J., Feb. 18—R. E. Mills, treasurer of the Rajah Auto Supply Co., died suddenly at his home in Montclair, Friday, Feb. 15. It was Mr. Mills who, with his brother, E. B. Mills, founded the present Rajah company seventeen years ago. Mr. Mills was buried at his old home in Canada.

Kalamazoo Car Show Best in Its History

**Fourteen Dealers Display Twenty
Different Makes—Demand
for Space Big**

KALAMAZOO, MICH., Feb. 18—The annual show promoted by the Kalamazoo Automobile Dealers' Association in the armory was the best motor car show ever held here, and from a survey among the exhibitors it also was a bigger business affair, as the dealers say that more cars were sold and contracted for by sub-dealers and agents than at the 1917 show, which was a record-breaker.

Fourteen dealers displayed cars, with twenty different makes and sixty models. This includes both passenger cars and trucks. The decorations were patriotic in setting, with the American flag and electric stars predominating. The demand for space was very large, the armory being packed to the limit, and some of those who applied too late could not enter. The Kalamazoo show is the only show in the southwestern corner of Michigan, and it tapped a large territory.

Dealers are confronted with the same problem as in other sections of the state, namely, the uncertainty of being able to get as many cars as they need. The demand for automobiles either of the moderate price or the higher price classes has not ceased, and just as long as the dealers will be able to be supplied by the factories they will be able to sell the cars.

More used cars have been sold thus far this year than during 3 months of last year. Good prices are obtained for almost any make of used cars, and quite a number of dealers have made arrangements with some of the large dealers in used cars in the big cities of other states to meet the demand.

Ever since the war started and rail conditions tightened up trucks have been in greater demand. During the last few weeks, especially owing to the tie-up of the railroad systems, the truck has been in many instances the only means of satisfactory traffic service, and this has given a still greater boom to the demand for the commercial vehicle. Many dealers who heretofore handled passenger cars exclusively are now much more anxious to handle the commercial car, and many are equipping themselves for this purpose.

Miller Rubber Earns \$831,271

AKRON, Feb. 16—Net earnings of \$831,271 during the past year were reported at the annual stockholders' meeting of the Miller Rubber Co. held recently. A contemplated stock dividend was passed. Directors elected were: Jacob S. Pfeiffer, William F. Pfeiffer, Frank B. Theiss, C. T. Grant and J. M. Doran. Jacob S. Pfeiffer was re-elected president; C. T. Grant, vice-president; William F. Pfeiffer, secretary and general manager; Frank B. Theiss, treasurer.

Southwest Will Take 4000 Farm Tractors

**This Number Will Be Needed For
Spring Work—Dealers Now
Stocking Machines**

KANSAS CITY, Feb. 18—The five states, Kansas, Oklahoma, Colorado, Missouri and Arkansas, will take 4000 tractors for delivery for spring work in 1918, according to estimates made by C. S. Roth, of the tractor department of the Emerson-Brantingham company in Kansas City. Colorado has already purchased 1000 tractors for spring delivery, according to Roth, who is in close touch with the situation, and he predicts that Colorado will purchase more farm tractors this year than any other state.

Kansas, according to Roth, has 4000 tractors in use on farms in that state at this time, and will probably purchase 1000 more this season, and is well along towards that figure now. Oklahoma may take 1000 tractors for 1918 spring delivery, and Missouri and Arkansas will utilize another 1000.

Dealers are buying more tractors this season to put into stock than heretofore, prompted partly by fear of inability to get delivery on sales made later, and also for demonstration purposes, and an inclination to take the discount made for sales to dealers as compared with those given the dealer only in the way of commissions.

The buying power of the farmers of Kansas, Oklahoma, Colorado, Arkansas and Missouri is such this year, states Roth, that they are amply able to take tractors even at advanced prices, and the scarcity of farm labor and man-power is causing many early orders to be placed. Tractors being on the B1 preferred list, or agricultural implement list of the Federal Government, there is no danger of the manufacturers of tractors being unable to secure material.

The problem at this time is the transportation of tractors from the factories to the farms, and the sales departments are confident that they can place the output of the factories if the railways will make deliveries.

R. B. Powers, manager of the Aultman Taylor Machinery Co., has just returned from an extensive tour of that part of the Kansas City branch house territory located in Louisiana, Arkansas and southern Missouri. In these virtually unworked states, as far as tractor sales in the past are concerned, he found a keen demand for tractors, particularly for road work, and ample buying power.

Money was never so plentiful as in these sections at present, and the farmers of these states are confronted by the same problem of farm labor as are those of Kansas, Oklahoma and other sections of the great central western agricultural belt, only more so, as the exodus of negro farm labor to the cities of the North has aggravated the labor shortage in Louisiana and Arkansas to a marked extent.

Powers sees an unprecedented demand for road building tractors and is preparing to specialize to meet this demand with the products of the factory he represents through the Kansas City branch house.

He, too, finds dealers more willing to purchase tractors for stock and demonstrations.

Guy Hall, secretary of the Kansas City Tractor Club and the National Tractor Show, sees the best year of its history ahead of the tractor industry in every western state, and predicts that 60 per cent of the 1918 output of the tractor factories for sale in the United States will go to farms west of the Mississippi River.

The inclination on the part of dealers to speed up orders and to get deliveries at the very earliest date possible, in order to get away from any congestion that might result from rush orders later on, is taken by Hall as being one of the most favorable tendencies of the trade just now.

The tendency on the part of dealers to stock tractors is another pleasing element in the tractor trade that appeals to Hall, who expects that attendance records for the 1918 National Tractor Show will break records for attendance and for sales made during the week.

Link Mid-West Cities With Truck Line

DETROIT, Feb. 18—Detroit, Cincinnati, Cleveland, Toledo and Chicago will be connected by an inter-city motor truck line within 60 days if plans now under way mature successfully. A Toledo concern known as the National Motor Transport Co. is planning to put fifty trucks into operation in 2 months, and as soon as these are in successful operation to add 100 more. It is expected that 150 trucks will be on the road in 90 days. F. V. McCormick of Detroit is in Toledo organizing the company. It is stated that twenty-five men, most of whom are Toledo business men, are interested, and it is expected to incorporate soon for \$1,500,000.

The routes between the four cities have been mapped out and test trucks have been sent over the roads that show that fast time can be made. According to tentative schedules, the distance from Toledo to Detroit will be covered in 6 hours; from Toledo to Cleveland in 12 hours; Toledo to Cincinnati in 18 hours, and Toledo to Chicago in 24 hours. It is planned to run the trucks in trains of five each, and it may be that branch lines will be established along the routes later. All kinds of parcels, express and freight, will be carried.

Hup Makes 1250 Cars a Month

DETROIT, Feb. 18—Since November the average production of the Hupp Motor Car Co. has been at the rate of 1250 cars per month, or between 40 and 50 per day.

Trade Changes Follow Show at Twin Cities

**Many New Dealers and Distributors
Open on the Row—Accessory
Trade Grows**

MINNEAPOLIS, Feb. 18—Developments of the trade in the Northwest at the time of the Twin Cities automobile, truck and tractor exhibition just closed included several new distribution branches. Among these are the following: Eschner Motor Co., 208 West Fifth Street, St. Paul, Any-Auto-Tractor attachment; Northwestern Automobile Co., 1500 Harmon Place, Minneapolis, Plow Man tractor; Whitcomb Auto Co., 16 Eighth Street N., Minneapolis, Challenge tractor; Melges Bros., Palace Building, Minneapolis, Lang tractor; McNulty-Dafoe Co., 1528 Hennepin Avenue, Minneapolis, Graham Bros. truck builder; Fawkes Auto Co., 1629 Hennepin Avenue, Minneapolis, Duplex tractor; F. R. Corcoran Co., 519 Second Avenue, S., Minneapolis, Knickerbocker Forma-Tractor; Cyrus Robinson & Co., 610 Third Street S, Fulton truck; Sweeney Commercial Truck Co., 1306 Twentieth Avenue N, Minneapolis, Autocar truck; Utility Truck Co., factory branch, Hennepin Avenue and Twelfth Street, Minneapolis, Utility truck; Twin City Motor Car Co., Harmon Place and Willow Street, Minneapolis, Liberty car; Northwestern Haynes Automobile Co., 1012 Hennepin Avenue, Minneapolis, Pilot car; La Crosse Auto Co., 1203 Hennepin Avenue, Minneapolis, Maibohm car.

Other new automobile and accessory businesses opened are as follows: G. A. Fassnacht, eight years with the B. F. Goodrich Co., Inc., has opened the Standard Tire Repair Co. at 1315 East Lake Street, Minneapolis. C. L. Lenord and F. M. Moffet, formerly with the radiator department of the Ford Motor Co., opened a repairshop at 26 Fourth Street N. E., Minneapolis. Fenton & Berry opened a used car sales station at 217 Seventh Street S., Minneapolis. Thomas Pollard, formerly service floor man for the Ford Motor Co. and also chief mechanic for Smith & Overnshire, Ford agents, has bought out the latter company at 2605 Nicolet Avenue and has added space adjoining at 11 East Twenty-sixth Street, Minneapolis.

Pasco Wheels for Bailey-Drake

GENEVA, N. Y., Feb. 16—The National Wire Wheel Works, Inc., has completed arrangements with the Bailey-Drake Co. to act as manufacturers' agent throughout the West, establishing offices in Los Angeles, San Francisco, Seattle, Kansas City and Minneapolis. This arrangement becomes effective March 1 and the various branches will be open at that time. Sales will be conducted as before through dealers and jobbers, Bailey-Drake simply acting as manufacturers' agent west of the Mississippi River.

Specifications
of the
Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. E.	Limitation	Carburetor	Starting	Clutch	Gearset	Wheelbase	Tires	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Delachable Top
ABBOTT 6-62	6-31x51 29.4 Remy		Stumg	Remy	DD	3	122	34x4	SS		1595		1595	2150	2150		
ALLEN Series 41	4-31x5 22.5 Conn		Stumg	A-Lite	D	3	112	32x3	SS		11095		1095		1395		
AMERICAN 8	6-31x5 29.4 G & D		Zenith	G & D	D	3	122	32x4	SS		1375						
ANDERSON 20	6-31x41 25.3 Conn		Zenith	Weths	DP	3	120	33x4	SS		**1485				2165		
Deluxe	6-31x51 29.4				D	3					**1925						
APPERSON 8-18	8-31x5 33.8 Remy		Johnson Bijur		DP	3	130	34x4	SS		12550		2550				
AUBURN 6-39-B	6-31x41 25.3 Remy		Rafid	Remy	DP	3	120	34x4	SS		1345		1345				1595
6-44	6-31x51 29.4 Delco		Rafid	Delco	DP	3	131	35x4	SS		1685		1685		2450		1985
AUSTIN 6-44	6-31x5 39.6 Delco		Stumg	Delco	D	6	142	34x4	QD		3750		4000	4550	5000	5250	
BIDDLE 188	4-31x51 22.5 E'mann		Zenith	G & D	DP	4	121	32x4	QD		2600		12650		4100	4000	
BOUR-DAVIS 188	4-31x51 29.4 West		Stumg	West	DP	3	118	32x4	QD				1680				
4-31x51 22.5 West			Rafid	West	DP	3	118	32x4	QD								
BREWSTER 4-4	4-31x5 25.6 Boech		Zenith	U.S.L.	C	3	125	34x4	SS		7200			8400	8500		
BRISCOE 4-31x51	16.3 Conn		Buick	A-Lite	C	3	104	30x3	C		725		725			850	
BUCK 4-34-35	4-31x41 18.2 Delco		Marvel	Delco	C	3	106	31x4	C		795		795		1185	1845	
E 4-45	6-31x41 27.3 Delco		Marvel	Delco	DP	3	118	34x4	SS		1265		1265		11695	1845	1265
E 4-45	6-31x41 27.3 Delco		Marvel	Delco	DP	3	124	34x4	SS		1495		1495		2175		
CADILLAC 57	8-31x51 31.2 Delco		Own	Delco	D	3	132	35x5	SS		2805		2805		3650	4145	
CASE U	6-31x51 29.4 Weths		Rafid	Weths	D	3	125	35x4	SS		11875		1875		**2375		
CHALMERS 6-30	6-31x41 25.3 Remy		Stumg	Weths	DP	3	117	32x4	SS		1365		1365	1450	1625	1850	2025
CHANDLER 400	6-31x5 29.4 Boech		Rafid	Weths	DP	3	123	34x4	SS		11595		11675	1595	2195	2295	2895
CHEVROLET 440	4-31x4 21.7 Remy		Zenith	A-Lite	C	3	102	30x3	C		660		660		1060		
FA 4-31x51	21.7 Remy		Zenith	A-Lite	C	3	108	33x4	SS		935		935		1475		
D 4-31x4	36.4 Remy		Zenith	A-Lite	C	3	120	34x4	SS		1385		1385				
COLE 870	8-31x41 39.2 Delco		Stumg	Delco	C	3	127	35x4	SS		2395		1995	2195	2495	2595	
COLUMBIA C&D	6-31x41 25.3 A.Kent		Stumg	W.Lard	DP	3	115	32x4			11495		1350			1795	
COMET C-50	6-31x5 29.4 Delco		Miller	Dyneto	DD	3	125	33x4					1285		1995		
COMMONWEALTH 4-40	4-31x5 19.6 A.Kent		Carter	Dyneto	DD	3	112	32x3	SS		1995		995				
CROW-ELKHART CE-36	4-31x5 19.6 Conn		Zenith	Dyneto	D	3	115	32x3	SS				935		1295	1395	
CUNNINGHAM 8-31x5	45.0 Delco		Stumg	West	D	3	132	35x5									
DANIELS B	8-31x5 33.8 Weths		Zenith	Weths	D	3	127	34x4	QDR		3250		3250		3250		
DAVIS H. J. K	6-31x41 25.3 Delco		Stumg	Delco	C	3	119	24x4			1485		1485		1850		
J. I. 6-31x51	29.4 Delco		Stumg	Delco	C	3	125	34x4			1785		1785				
DISPATCH 4-31x5	22.5 Boech		Rafid	U.S.L.	CU	4	120	35x3	QD		1150		1260	1400	1400		
DIXIE FLYER 1835	4-31x5 16.9 Conn		Carter	Dyneto	D	3	112	32x3	SS		1995		995			1375	

ABBREVIATIONS—"A-C" Allis-Chalmers, "J-N" Leece-Neville, "Titsn" Tillotson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DID" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spldr" Splidorf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE— $37\frac{1}{2} \times 5\frac{1}{2}$ r means that the rear tires are $37 \times 5\frac{1}{2}$, and the front are smaller. Detachable top, 300x, means \$300 extra.

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Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Tulsa, Okla.....	Tulsa Automobile Dealers' Assn.....	February
St. Louis, Mo.....	St. Louis Auto Mfgs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 18-23
Toledo, O.....	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17
Ft. Wayne, Ind.....	Automobile Trade Assn., Concor-dia Gymnasium.	Feb. 18-16
Hartford, Conn.....	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.....	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.....	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.....	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.....	United Shows Co.	Feb. 18-23
Syracuse, N. Y.....	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.....	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Duluth, Minn.....	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.....	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.....	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.....	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.....	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vleet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.....	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Quincy, Ill.....	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars, Trucks.	Feb. 23-Mar. 2.....Mar. 5-9
Muskegon, Mich.....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Indianapolis, Ind.....	Seventeenth Annual, Indianapolis Automobile Trade Assn. Diamond Chain Works. John B. Orman, Mgr.	Feb. 25-Mar. 2
Columbus, O.....	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2
Burlington, Ia.....	Cars, trucks and accessories.	Feb. 27-Mar. 2
Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 28-Mar. 2
Lyons, France.....	Third Sample Fair.	Mar. 1-15
Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston.....	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Utica, N. Y.....	Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.	Mar. 4-9
Clinton, Ia.....	Clinton Automobile Dealers' Ass'n., Coliseum.	Mar. 6-11
Mason City, Ia.....	Annual Car and Truck, Automobile Dealers' Assn.	Mar. 6-9
St. Joseph.....	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.....	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Cedar Rapids, Ia.....	Cedar Rapids Auto. Trade Assn., Auditorium.	Mar. 11-16
Fargo, N. D.....	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-18
Raleigh, N. C.....	Auditorium. John Kelley, Mgr.	Mar. 13-16
Peoria, Ill.....	Peoria Auto Accessories Dealers' Assn., W. O. Ireland, Mgr.	Mar. 13-16
Warren, Pa.....	Warren Automobile Dealers' Assn., Rossell Garage.	Mar. 13-16
Fort Fairfield, Me.....	Reed's Garage. R. F. Reed, Mgr.	Mar. 14-16
Great Falls, Mont.....	Montana Automobile Distributors' Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
Vancouver, B. C.....	Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.	Mar. 19-23
Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luther, Mgr.	Mar. 20-23
Holdrege, Neb.....	Second Annual of Southwest Nebraska.	Mar. 20-23
Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Bridgeport, Conn.....	Sixth Annual Cars and Trucks, Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.	Mar. 25-30
Atlantic City, N. J.....	Second Annual, Garden Pier. W. W. Garabant, Mgr.	Mar. 30-Apr. 6
Hartford, Conn.....	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6
Green Bay, Wis.....	Brown County Automobile Trade Assn.	Apr. 6-8
Red Bank, N. J.....	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Reading Pa.....	Reading Automobile Trade Assn.	Apr. 8-13
Stockton, Cal.....	Third Annual San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Calumet, Mich.....	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20
Davis, Cal.....	Tractor Demonstrations, University of California.	Apr. 17-19
Hot Springs, Va.....	Convention National Association of Automobile Accessory Jobbers.	June 5-12

Conventions

Hot Springs, Va.....Convention National Association of Automobile Accessory Jobbers.....June 5-12

in This Issue

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 9

New York, February 27, 1918

Ten cents a copy
Two dollars a year

Dealers Who Delay Taking Cars Now

*Will Face a Shortage When the
Active Selling Season Starts Shortly*

This not being an active selling season, it is quite probable that many dealers do not realize the seriousness of their position as it concerns the future. Every year at this time it is the custom of many dealers to refuse to make any definite arrangements for cars. They have been in the habit of waiting until the demand develops, and then going to their distributors for such cars as they need. They have not been taking any cars lately, and therefore probably do not realize what effect freight embargoes and other influences have had in curtailing production.

It has been impossible to make the usual overland drive-aways from the factories this winter. No dealer has any stock of Hudson Super-Sixes. The production of the new series was started in December. For days, in common with all other manufacturers, we were unable to ship a single car either by freight or by express. Several days have been taken out of production because of the coal situation. It is time taken out of a period when advanced stock is being produced for the spring demand.

With production cut forty per cent, and no one able to guess what further curtailments may be necessary because of freight, labor, coal, the war and other influences, and with the country just getting under way in the greatest distribution of money it has ever known, the prosperity is going to those automobile dealers who have the foresight to get cars just as soon as they can.

Hudsons in stock are like wheat in the bin.



HUDSON MOTOR CAR CO.

Detroit, Michigan



A dealer who can supply his customers with such motor car value as is expressed in the *perfected valve-in-head* Nash line and at the same time meet the commercial demand with such well established trucks as the Nash trucks, which includes the famous Quad, would seem to be in the most enviable position in his territory.

Nash Passenger Cars

5-Pass. Touring Car \$1295
 4-Pass. Roadster - 1295
 Sedan - - - - 1985
 Nash Model 671 - 1465

(Seven-Passenger Touring Car)

Nash Trucks

One Ton Chassis \$1495
 Two Ton Chassis 1875
 Nash Quad Chassis 3250

Prices f. o. b. Kenosha

The Nash Motors Company, Kenosha, Wis.

*Manufacturers of Passenger Cars and Trucks,
 Including the Famous Nash Quad.*

NASH MOTORS

VALUE CARS AT VOLUME PRICES

MOTOR WORLD

DEALERS, JOBBERS, AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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"NORMA" BALL BEARINGS

(Patented)



Quality—a thing sought after by every car and truck builder—a thing intangible, almost indefinable, but the most desirable element in a car or truck. One thing, however, is sure—quality must be consistently uniform throughout every part, every accessory and every part of every accessory. There can be no minor flaws in the perfect jewel of high quality.

"NORMA" High-Quality Bearings are the standard bearings in those high-quality magnetos and lighting generators which are found so consistently good as to be the standards on high-quality cars and trucks. "NORMA" Quality explains.

**Be Sure—See That Your
Electrical Accessories
Are "NORMA" Equipped**



THE NORMA COMPANY OF AMERICA

1790 BROADWAY

NEW YORK

Ball, Roller, Thrust and Combination Bearings

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GRAY & DAVIS STARTER for FORD cars

**Every Ford Owner
A Logical Customer**

Dealers who sell Gray & Davis Ford Starters make money. Every Ford Owner is a good prospect. Every Owner using this system is quick to tell his neighbor of its advantages. This constantly develops new prospects. The demand is always increasing because Gray & Davis Systems have proven their efficiency on thousands of Fords everywhere, and there are thousands more waiting to be equipped by live Dealers.

Write today for Booklet A-62 and our interesting proposition.

GRAY & DAVIS Inc. BOSTON, MASS.

CANADA-UNIVERSAL CAR AGENCY, WINDSOR, ONT.



MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, February 27, 1918

No. 9

February Shows Will Help Spring Business

ON the pages that follow are the stories of late February shows in St. Louis, Portland, Ore.; Brooklyn, Duluth, Newark, Des Moines, Syracuse, Albany and Madison, Wis. Each one of these has been an optimism builder. Each has laid the foundation for spring business.

There has never been a year when the dealer shows have meant so much to the motor car industry. The dealers have bridged a bad situation with enthusiasm and success. And next week comes Boston.

By Ray W. Sherman

ST. LOUIS, Feb. 22—The St. Louis dealers feel well repaid for the great effort to which they went in putting on their 1918 show. They are to be commended for having any show at all.

They had no building suitable, and the building in which the show is held is one of the least suitable used this year by the big cities of the country. It is the old Southern Hotel, which some years ago was the Mecca of high life in the southwest but which to-day is, or has been, a problem on the hands of the owners.

It is just like any other hotel, wherefore one can imagine what a job it is to hold a show therein. There are cars in what used to be the lobby, the kitchen, sitting rooms, baggage room, drug store, ladies' parlors, bridal suites and common ordinary hotel rooms.

Fred W. A. Vesper, with the Buick, has a young salon in what used to be a ladies' parlor. Stearns is in what used to be a bridal suite, and so are Reo and Dort. A

body man is where the drug store used to be and even that room is used where 30 years ago the sensation of the day was centered in the Preller-Maxwell murder. Preller murdered Maxwell and tried to ship him out of the hotel in a trunk, but the trunk was suspected and discovered. All of this furnished fine publicity for the show and helped Manager Robert E. Lee get the necessary crowds—but it didn't make a very easy show building.

The Show Showed the Public

The show, however, has served the purpose of the 1918 show—which is to get the crowds and show the public that the old motor car industry is still here as strong as ever. The crowds have been good, the displays are as good as could be anticipated, and the show is one more added to the string of successful ventures that have been pulled off by dealers this year.

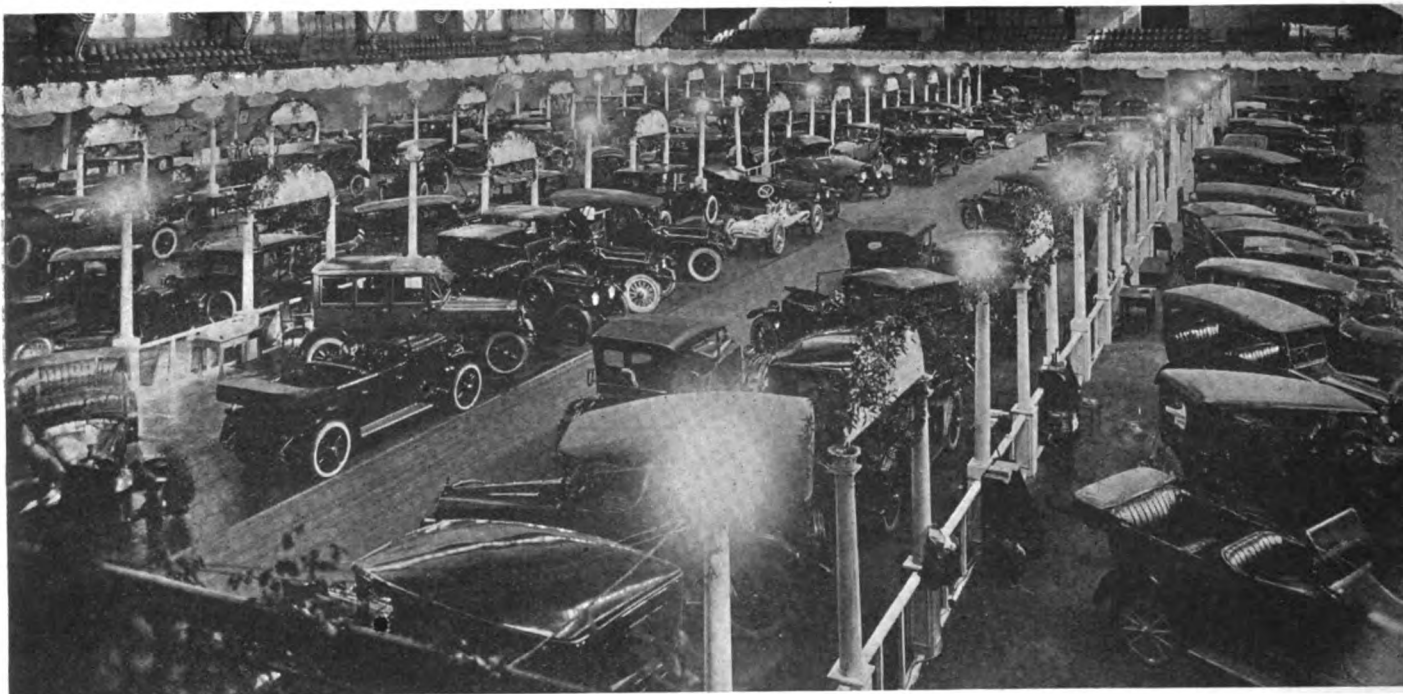
The industry owes a great deal this season to the shows that dealers have held—some of them under most adverse circumstances.

The great difficulty with the building is that it is so chopped up. There is no sweeping expanse of room, such as the public is accustomed to seeing in a show. Exhibits are in all sorts of rooms and corners, and the accessory people have had to stage their displays in regular hotel rooms along a hall. This gave each exhibitor a room by himself in which he might put on any kind of display he wished, but it also made it easy for the public to walk down the halls and not enter the rooms.

Some of the accessory people had good luck and some didn't. By the middle of the week quite a few developed ballyhoo men of their own who stood in the middle of the hallways and shooed the people into the exhibits. This was quite successful.

Two floors are used, the ground floor and the second, or parlor floor. The latter contains both parlors and common guest rooms.

The original interior decoration of the hotel is still there—more or less—so not a great deal of decorating was done.



The Brooklyn, N. Y., show was pretty. The management and dealers believe in injecting merchandising atmosphere, and the result was numerous little floral touches here and there that helped out mightily

What was done was mostly floral arches and such things. The marble pillars in the lobby are quite decorative in themselves.

The hotel is in the downtown section, which made getting the crowd an easier task. From an advertising standpoint the building had many advantages.

The crowds have been gratifying, and the business outlook is said by the St. Louis dealers to be good.

They serve a territory which, in its largest dimensions, includes half of Illinois, half of Missouri, part of Kentucky and Tennessee and most of Arkansas. This territory is prosperous this season. The farmers in the outlying lands have had good crops, following several years of poor crops. Wheat and corn are good. Where it used to be the rule to find less

than three ears on a stalk of corn farmers now have to hunt to find less than three, says Joseph A. Schlecht, president of the St. Louis Automobile Manufacturers' & Dealers' Association, which holds the show. This means good money in the country districts this year, and when the farmer has money he always buys things he needs on the farm, some of which are cars, trucks and agricultural tractors.

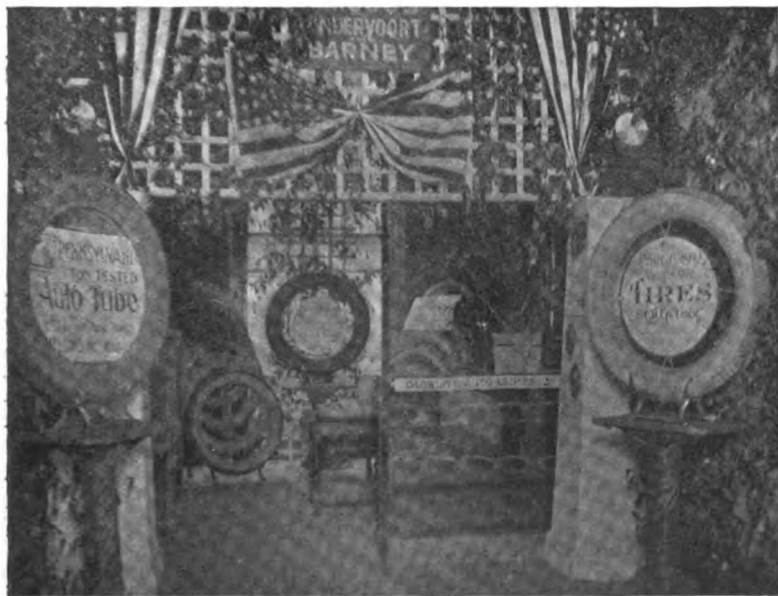
4000 Dealers Came

Between 3000 and 4000 dealers attend the St. Louis show. They come from all through the section. Out in the middle of Missouri some dealers go to both the Kansas City and St. Louis shows, and those on the central Illinois border line go to both Chicago and St. Louis, but

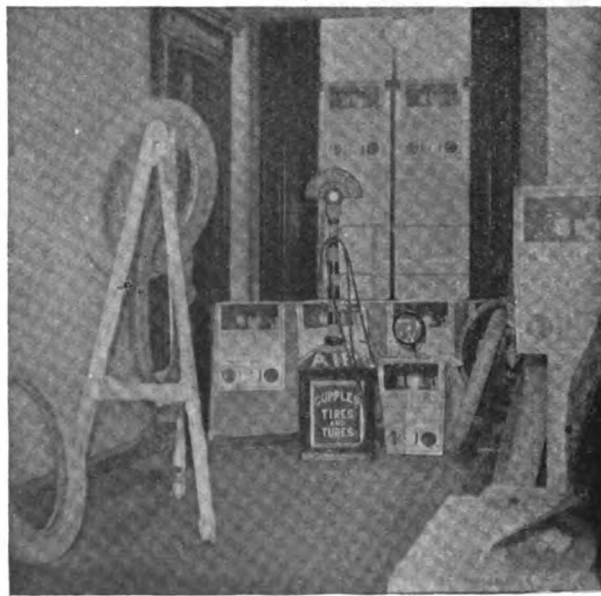
most of them go to the St. Louis exposition.

The spirit among the dealers is good. It has been fairly good and is better now that several meetings were held by the St. Louis trade. The week before the show Alfred Reeves, general manager of the National Automobile Chamber of Commerce, gave a message of confidence to the St. Louis trade. Tuesday of show week Ray W. Sherman, of Motor World, told a noon meeting of dealers from the city and country how dealers must be optimistic, more efficient and be automotive dealers. Wednesday E. LeRoy Pelletier, advertising counsel for the Reo, held an interested audience for an hour and 22 minutes while he cited economic facts to prove that spending and prosperity have always been twin brothers.

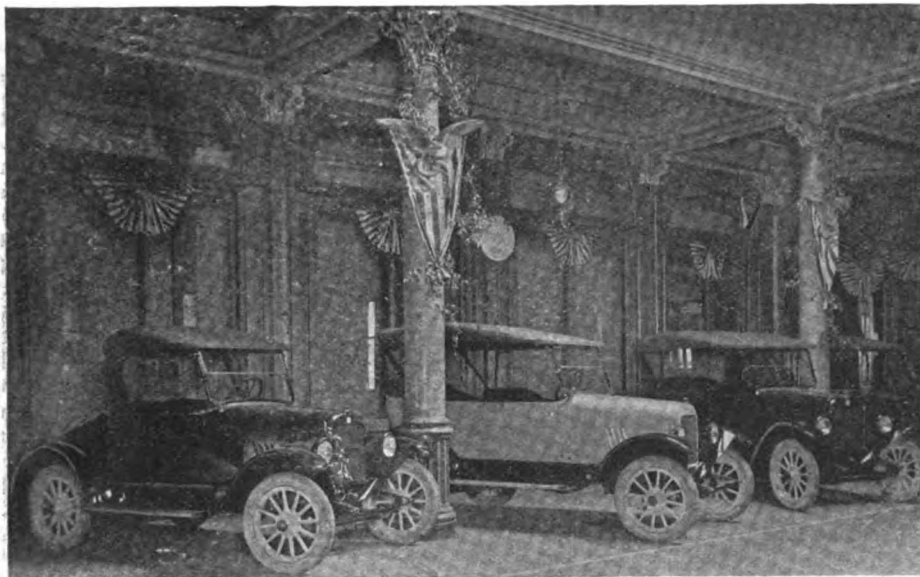
Dealers were made more enthusiastic



The accessory exhibits in the St. Louis show had all sorts of little rooms and corners in which they had any kind of display they wished to set up



This is a view, in the St. Louis show, into one of the former guest rooms that was used for accessory displays



This shows the ornate walls and marble pillars that abounded in the St. Louis show. These were quite decorative, so little additional decorating was done

about business. They can go back to their homes with the consciousness that every time they turn a dollar in trade they are creating that great wealth which the country must have if it is to get back of the war with the necessary wallop.

The distributors here have already begun to move into automotive lines. To have a car and truck is common. To handle a car, truck and tractor is not unusual. To have these and in addition a farm lighting outfit is a combination found in several cases, although some of the lighting business is handled often in a separate location by a separate company.

Those distributors who have not a truck are carefully scanning the truck lists and none of them is deaf to the news of the tractor world. Several have truck, farm lighting and tractor displays in stores and other buildings adjacent to the show, for there is no room in the show for more than the cars and a few commercial delivery wagons.

Getting cars is going to be one of the problems of the coming season. Freight shipments to the Southwest are not as bad from Michigan as they are to the East, but they are bad enough. Some cars are driven to Chicago and shipped, while a few have been driven all the way overland.

One distributor, whose car is made in Ohio, went to Detroit, nosed around the factories for a few days, saw the probability of a lack of cars when the spring season opens, and at once wired his factory to begin at once and ship his entire year's allotment as fast as they could be gotten under way. He has now quite a supply on hand and believes he will be able to cash in when the spring demand begins to exceed the row's supply.

While the show is good, conditions good, prospects good and the outlook for a good business fine, there is one point to which St. Louis should pay attention. It is what some of the St. Louis people call "the St. Louis spirit."

The city is peculiar in some respects. It is situated in the West, but it is more

of a southern than a western city. It is, it may be said, a trifle conservative by comparison, and with this quiet conservatism goes a lack of the true co-operative spirit in motor circles.

Here is a fine opportunity for the motor car men to shake things up and show the town what motor car men can do once they take hold of a difficult problem. The St. Louis dealers are not in full accord and harmony. There is a lot

of knocking. There isn't enough push-and-pull-together. There should be a new spirit created.

Something along this line has already been started. The St. Louis Automobile Manufacturers' & Dealers' Association and the Motor Accessory Trade Association have been holding joint meetings, with the object of creating a better spirit. This movement is commendable and should have the full support of every man in town.

One man said: "What's the use of trying to do anything with this bunch? Did you ever see such a town in your life? This St. Louis spirit is awful!"

Another said: "This town is about three years behind the times. What other cities began to do three years ago we are just getting started on. The show is punk! The crowd is no good!"

Another said: "What's the use of trying to hold these meetings? The crowd won't come out, they don't take any interest in anything, and anybody who ever came here never wants to come back."

Another sample is: "I never tried to do anything in this town that I didn't have a fight with somebody about it. I never started anything here that it wasn't a hard job. It is the darnedest town I ever saw!"

But, really, now, can it be that all these things are true?

St. Louis has within its outlying environs a million people. It is a gateway to a rich and prosperous territory. It is a city rich in history and memories. It has thousands of fine homes and miles of

HAVE YOU SEEN——?

In This Issue

1—LOCAL SHOWS

THE local show circuit is at its zenith. Commencing on page 5 of this issue nearly a dozen are illustrated and reported. The fact that these shows are being held, and are proving successful, should hold a big measure of cheer to forehanded dealers.

2—A WONDERFUL NEW BUILDING

THE Gibson company is one of the country's biggest jobbers; it has put up a wonderful new building which didn't cost much but which is a model of its kind.

3—STEERING GEAR ADJUSTMENTS

NOT everyone knows just how to do this difficult work. It requires experience and a certain knack which can be acquired. This article tells the whole story.

And Now For NEXT WEEK

THE Boston show is going to be one of the most important shows of the year. For the first time the Motor & Accessory Manufacturers Assn. has placed its stamp of approval on this great dealer exhibition. There will be pages and pages of pictures—and a report by Motor World experts.



At the right, in this part of the St. Louis show, is the old desk where Jack Ryan, now a truck man, used to register guests and where he gathered the funny stories he now tells

good streets. It has all the things necessary for being a regular humdinger—and yet its own people don't seem to believe in their own town.

We are speaking mostly about the automobile people, so let's ask: What can they do about it?

Well, for a starter, let's suggest as follows: Get the crowd together and get it acquainted with itself. Find out what some of this "St. Louis spirit" is and why it exists. Analyze the situation and find what's wrong.

Then set out by means of propaganda to sell the motor trade of St. Louis on itself. Cut out the knocking. Elect the chief knockers official boosters. Put it up to every man personally to get behind the movement and push it across. Make him take pride in his city and in himself.

If it is true that St. Louis is backward in business or merchandising methods, find out what the defects are and systematically plan for their correction. If the sales methods of the town are found to be poor, turn some of the meetings into schools of sales instruction, and see if these faults can't be corrected—provided such faults exist.

This is not saying that such faults do exist—it is merely pointing out how to correct faults and these are cited as samples.

Pessimism is said to be common. That can be cured by persistent work.

Dealers are said to trade used cars foolishly. This fault can be corrected by a little co-operation.

The joint meetings that have been started should help a lot. They should be supported enthusiastically by the trade. They should be **ATTENDED**. Staying at home when a meeting is being held is, as stated above in a St. Louis man's own words, one of the faults of the trade in this city.

Supposing some one were to get up at one of these joint meetings and tell those present that they were citizens in one of

the punkest towns in the world. Would they resent it? Surely they would! They would develop a fighting spirit. They would all get together, shoulder to shoulder, to fight for the good name of their city and of themselves.

This fighting spirit seems to be needed, so far as the motor trade is concerned. Let's have it.

That is the unpleasant side of the situation. The other side is this: In St. Louis is one of the finest collections of salesrooms in the country. The row numbers some of the trade's best men, one of whom has been chosen president of the

National Automobile Dealers' Association. Some of the dealers are the best in the world when it comes to personnel and methods.

The town isn't as bad as some of its own people think it is. All that is needed is the development of more of the right spirit. Make the "St. Louis spirit" something to be proud of.

The show has been successfully staged. Business for 1918 is starting off well. Everything is propitious, as viewed by the stranger.

The Sixth City is saying a lot about its position among America's leaders, while this "fourth city" has been a trifle too modest. It should take inventory of itself, sell itself to itself, and then go out and sell the world.

Car Exhibitors at St. Louis Show

Biddle Motor Sales Co.....Biddle
Bleek Automobile Co.....Crow-Elkhart, Glide
Brandle Motor Sales Co.....Westcott
Briscoe Motor Sales Co.—

Briscoe, Marlon-Handley
Cadillac Automobile Co.....Cadillac
Case, J. I., T. M. Co.....Case
Chevrolet Motor Car Co.....Chevrolet
Comet Motor Car Co.....Comet
DeLuxe Automobile Co.....Oldsmobile
Detroit Electric Sales Co.....Detroit
Dorris Motor Car Co.....Dorris
Franklin Auto Co.....Franklin
Frye Motor Car Co.....Saxon
Hudson-Phillips Motor Car Co.....Hudson
Ideal Motor Sales Co.....Columbia
Kardell Motor Car Co.....Reo, Dort
Leach-Brouster & Co., Baker, Owen Magnetic
Leigh, J. W., Motor Car Co.....Apperson
Lewis Automobile Co.....Chandler
Locomobile Co. of Mo.....Locomobile
Mitchell Automobile Corp. of Mo.....Mitchell
Moon Motor Car Co.....Moon
More Automobile Co.....Marmon
Mound City Buggy & Auto Co.....Allen
Neustadt Auto & Supply Co.....Dixie Flyer
Newell Motor Car Co.....Paige, Stearns-Knight



This Grand Staircase, in the St. Louis show, is one of the old historic relics. Thousands went to the show just to see these old reminders of days gone by

Newman, Harry, Inc.....Kissel-Kar
Overland Automobile Co.—

Overland, Willys-Six, Willys-Knight
Packard Mo. Motor Car Co.....Packard
Park Automobile Co.....Peerless, Chalmers
Phillips Motor Car Co.....Harroun
Rottersmann Auto & Truck Co.....Nash
St. Louis Grant Motor Car Co.....Grant
Sperreng-Oakland Co.....Oakland
Superior Motor Car Co. Inter-State, Lexington
Supreme Motor Car Co..Scripps-Booth, Stutz
Tate-Gillham Motor Car Co.....Dodge
Velle Automobile Co.....Velle
Vesper-Buick Automobile Co.....Buick
Von Arx Automobile Co.....Winton
Weber Implement & Auto Co.—

Maxwell, National, Hupmobile
Weber Motor Car Co.....Studebaker
Welling Motor Equipment Co.....Olympian
Western Automobile Co.....Pierce-Arrow
Wilson Motor Car Co.....Haynes, Elgin

Accessory Exhibitors

Aetna Life Insurance Co.
Air Reduction Sales Co.
Anderson Electric Specialty Co.
Auto Devices Co.
Bailey Auto Body & Sales Co.
Banner Sales Co.
Bartholomew Mfg. & Supply Co.
Barutlo Tire Co.
Bittel-Leftwich Co.
S. F. Bowser Co.
Bugbee-Manning Sales Co.
Champion Spark Plug Co.
Commercial Auto Body Co.
Cupples Co.
J. G. Doty
A. E. Eden
Ferry-Mark Mach. Co.
Geller, Ward & Hasner Hdwe. Co.
Globe Electric Co.
Ingells Mfg. Co.
K. & W. Rubber Co.
Koochook Rubber Co.
KorKer Sales Co.



This part of the St. Louis show is one of the lobby corridors down which the fashion of Dixie has come many times in the old Southern's palmy days

Mazda Mfg. Co.
Mississippi Glass Co.
Missouri Auto Specialty Co.
Phoenix Auto Supply Co.
Pickett Tire Co.
Roedding Signal Light Co.
St. Louis Fuel Committee
St. Louis Perfection Tire Co.
Scruggs, Vandevort & Barney Co.
Shapleigh Hdwe. Co.
Shurnuff Mfg. Co.
Sickles Saddlery Co.
Singer Signal Device Co.
Standard Adding Machine Co.
Sternwear Tire Agency
Strauss Saddlery Co.
Turner Brass Works
Turley Gear & Machine Co.
Utilities Indemnity Co.
Vesta Battery Co.
Wielandy-Reller Auto Equipment Co.
Williams Brothers Co.

Madison Is Automotive

MADISON, WIS., Feb. 23—The sixth annual motor show conducted by dealers and distributors of Madison, Wis., on Feb. 20, 21 and 22, proved to be one of the most comprehensive displays of the kind ever made in Wisconsin, and for practical purposes may be characterized as a miniature of the 1918 Minneapolis show because it devoted exceptional attention to trucks, tractors, etc., rather than concentrating on passenger cars.

The show was held in the new warehouse of the Union Transfer & Storage Co. and covered about 45,000 sq. ft. The decorative scheme used by the Milwaukee Automobile Dealers, Inc., at the tenth annual Milwaukee show in the Auditorium, Jan. 17 to 26, was used.

Des Moines Has Three Shows at One Time

Car Show, Truck Show and a Manufacturer's Accessory Show in the New Herring Building—Iowa Is Prospering

DES MOINES, Feb. 23—Iowa is going to buy during the next ten months just as many motor cars as the dealers of the state can deliver.

Only two factors can prevent the Hawkeye State from having the biggest year in motor car buying that it has ever known, and at the present time Iowans own one car to every eight persons in the state.

The two factors are of course curtailment of production and transportation.

Any doubt as to the truth of the above statements was dispelled at the Des Moines show Feb. 17-23.

Optimism and enthusiasm were the keynotes of the show. If there are any pessimistic dealers in the state they stayed at home. The 1200 dealers who attended were brimful of pep over sales prospects, and their only worries are deliveries.

Even a drop of 40 degrees in the

mercury the second day of the show failed to cast any gloom, and Wednesday night, when the thermometer registered 10 below, set a new attendance record, which, however, was speedily displaced by the Thursday night crowd.

The Des Moines show this year was really three separate and distinct shows, each one complete in itself but all working in harmony for the general good of the motor trade.

Three Separate Shows

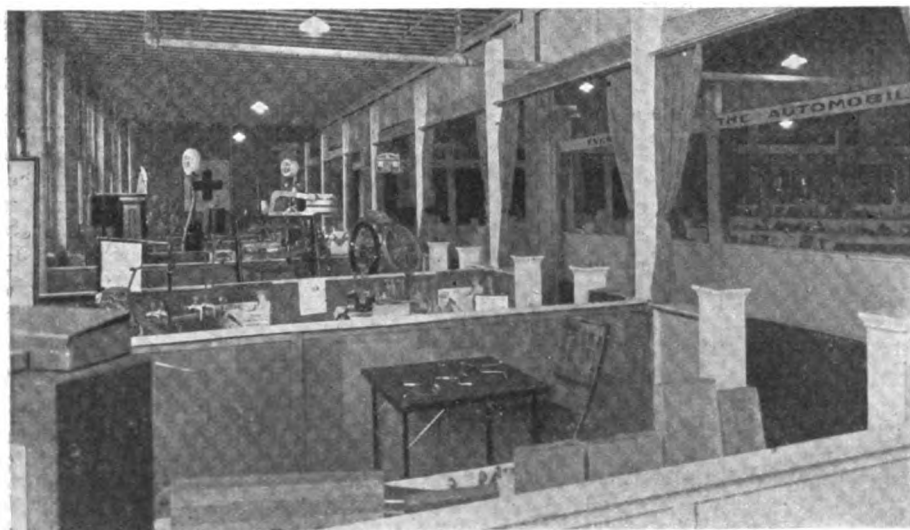
The parent show, "the big show," which was the ninth annual, was held at the Coliseum under the auspices of the Des Moines Automobile Dealers' Association. At the Auditorium, three blocks away, was held the second annual truck show, which was handled by the Des Moines Motor Truck Association. The Herring Motor Co. had an accessory show at its new service building, which

was the biggest thing of its kind ever attempted by any individual midwest dealer.

The Des Moines show has never laid any claims to being the "biggest show in the world." But year after year since its inception 9 years ago it has maintained an enviable reputation with the trade of the entire country as a show which was not surpassed as a classy, dignified productive show.

The show is managed by Dean Schooler and C. G. VanVliet. VanVliet has been one of the managers throughout the entire nine years, and Schooler has been associated with him for the past seven years.

It is consistently an organization show. Questions as to its management are threshed out in the meetings of the Des Moines Automobile Dealers' Association, and when settled the action is unanimous. On the show floor the various



The Des Moines Show

AT the Des Moines show this year the decorating scheme has been so altered that the show has a quite original appearance. The nice exhibit divisions that run out toward the aisles used to run down back of and between the exhibits. The crinkly stuff along the sides above the cars is part of a decoration that conceals the gallery. Canaries sang in the cages, one of which can be seen in the foreground.

The Herring Show

THE Herring Motor Co., one of the biggest jobbers in the country, has just completed a new building and used it to house an accessory show, there not being room enough in the Des Moines car show for many accessory exhibits. Manufacturers were invited to put their wares on display, factory men lectured, hundreds of dealers attended, and business, technical and merchandising classes were conducted for their benefit. For a mere jobber's show it was some show. Both the lower pictures on this page are of the Herring exhibition.





During the Des Moines show the Ever-Ready sales representatives were given a dinner by the company in the Herring building

dealers do not vie with each other in decorative or entertainment features. All decorations are general and the individual booths are just as the show managers outline them.

New Advertising Plan

Last year the show managers inaugurated a new advertising plan which proved a success and has been adopted by a number of the shows of the Middle West. For two weeks previous to the show and up until the final day not a member of the association uses any advertising space. The advertising is handled entirely by the show managers and is a builder for the show, not for sales. This year the advertising has a decided educational trend which has been most effective.

Newspaper display and billboard were played heavily by the managers, and in addition many thousands of inserts were used by the dealers of the city. The display advertising this year cost the dealers approximately \$5,000.

The show used 30,800 ft. of space, which was the same as in 1917. No more could be used because there was no more available.

In spite of the winter come-back staged by the weather man the attendance was 35,000 as against 30,000 a year ago. Only three special days were featured. Monday was Chamber of Commerce night, and the attendance was largely of business men and their ladies. Thursday night, which was the record breaker for attendance, was Society night. Saturday was declared Soldiers' day, and several thousand of the men in brown from Camp Dodge thronged the Coliseum.

Plenty of Sales

Retail sales were just about on a par with those of last year, possibly a trifle better. Show sales were affected more or less by the bad weather.

Dealers who supported the show are convinced that it was more valuable as an advertising proposition than ever. They say that particularly in these troublesome times, when the small town dealer is bothered with the many problems which now confront all dealers, the presence of the factory men and association with the city dealers is making wonderfully to dissipate many of the perplexing problems of the rural dealer.

Aside from the trade journals he gets most of his actual first hand news of the trade from the shows, and this year this is a most important part of the show's functions.

The coming spring and summer are going to be record breakers for the dealers all over Iowa if sufficient deliveries can be secured.

Iowa is, of course, fundamentally an agricultural state. Nine-tenths of the people are dependent either directly or indirectly on the products of the farms. They are not affected by influences which bear upon the people of the east or the west coasts. As long as the little old farms go on turning out the corn, oats and wheat, wars may come and wars may go, but Iowa goes on forever.

Iowa Is Prosperous

There never was a time when Iowa was as prosperous as she is to-day. Although she is a long way distant from the war babies and munition fortunes of the East, the good old Iowa soil turned out last year the greatest corn and oat crops which the state ever saw. Some of the corn was soft, but a few years ago if a farmer could get \$1 a bushel for his best corn he thought he was in clover. The soft corn is bringing \$1 per this year.

The state is rolling in wealth.

As John Wilson, Hudson dealer at Menlo, Iowa, expressed it to the Motor World representative: "When cows are selling for \$150, and hogs at from \$75 to \$85 a piece, why should we worry?"

The present times are bringing out a new class of prospects in Iowa. The wage earner is coming into his own. A few years ago \$30 a month was considered high wages for Iowa farm hands. Now you can't pick one up for less than \$50 per month, and some farmers are paying as high as \$60. This to the farm hand with board, and all that goes with it, is as good as \$120 to the average city dweller. So many of the dealers are looking to the farm hands to buy cars during the next nine months.

The show experienced little difficulty with the revenue officials. The only question which bothered was whether or not the revenue tax would have to be paid each time the dealer presented his pass or whether one revenue tax a day would be sufficient regardless of the number of times a day it was presented. The local

revenue officials ruled that the tax must be imposed each time the pass was presented, but they were overruled by their superiors and the dealers paid one tax a day on their passes.

The show will not have to pay an income tax as it is not held for profit and all funds go into the show.

No tractors were shown at the show this year simply for the reason that no space was available. The tractor was, however, a source of almost constant talk by the dealers at the show, and already plans are being considered by the managers to have tractors at the 1919 show. There is a possibility of erecting a building on the river front adjoining the Coliseum to house the tractors.

The Des Moines truck show was the second exclusive truck show ever held here. There were a half dozen more exhibitors than last year and an increase of 500 sq. ft. in display space.

The truck show is, of course, a business show and goes without frills and elaborate decorations. Attendance this year was larger than last, and there was a decided increase noticed in the interest shown by the dealers and visitors present. The men who went to the truck show went because they were interested in the purchase of a commercial car. They were not just curiosity seekers.

Des Moines is rapidly growing in the use of commercial cars. As proof of this one truck house alone sold in the month of January thirty-one trucks, and its territory is not extensive either.

On the second floor of its new service building, with a floor space 132 x 148, the Herring Motor Co. put on an accessory show which was a complete show in itself. Forty-three accessory jobbers were represented by factory men and the affair was one of the most pretentious ever attempted by an individual dealer. The Herring company mailed out invitations to 8000 of its dealers and the attendance was good.

Tuesday night of the show served as the formal opening of the new service building, and in spite of a bitterly cold wind and the thermometer registering close to zero several thousand people visited the service building and also the wholesale building. Both plants were working with full forces. Two orchestras from members of the Herring organization furnished music. On Monday night Herring gave a dinner to 400 Des Moines business men, and took them through the two plants. Dinner was served on the second floor of the service building.

The Quincy Show

QUINCY, ILL., Feb. 21—The first annual automobile and tractor exhibit opened yesterday at the new state armory here. The show was staged under the management of L. B. Bartlett by the Quincy Automobile Dealers' Association, the membership of which includes practically all the dealers in the city, both in trucks and cars.

Twenty-five car dealers, five tractor firms and ten accessory houses filled the building with their exhibits. A patriotic color scheme was used throughout for the decorations, and a good orchestra helped enliven things.

Quincy distributors cover many counties in western Illinois and northeastern Missouri and many sub-dealers came in to view the exhibits and close contracts, for the big thing most of the dealers had in mind was the car owner from the surrounding rich agricultural country.

The farmers in this territory all have money, as crops were good last year and prices high, and the consensus of opinion of practically all the exhibitors was that if they could get the cars and trucks, as well as tractors, from the manufacturers,

they could sell at least 50 per cent more cars this year than last.

One prominent dealer who heretofore has confined his activities to cars only told the Motor World representative that unless he could get more cars than he had last year from the manufacturers he would have to push the sale of tractors and trucks this year, and several others said they were taking on truck and tractor lines, for the demand for tractors and trucks is on the increase in this part of the West.

Brooklyn Holding a Two-Week Car and Truck Show

Cars One Week and Trucks the Next—With Spring at Hand
Long Island Looks for a Big Future Business

BROOKLYN, Feb. 25—Brooklyn is holding a two weeks' show—one week cars and one week trucks. It is probably the only truck show this season to run all by itself as to place and time except Milwaukee.

Other shows have had sections devoted to trucks and some have separate truck shows at the same time as the passenger car exhibit, but this one does not begin until the car show has ended.

The car show began Saturday night with a record crowd. The police had to be called to keep the ticket buyers in line. Manager I. C. Kirkham states that the crowd was bigger than attended the New York show Saturday, and is the

biggest opening night crowd Brooklyn has ever had.

The Brooklyn show is also unique in that it is the third show this season in Greater New York. A few weeks after the New York show an exposition was held in the Bronx, and the Brooklyn event is the third. It is almost the fourth, for there ended last week the Newark show, which is just across the river and is prevented from being part of New York by the fact that it is across the Hudson River in another state.

The Brooklyn car show ends next Saturday night. Sunday and Monday will be moving-out-and-in days, the cars going out and the trucks coming in. The

decorations will not be changed except for the signs over the spaces.

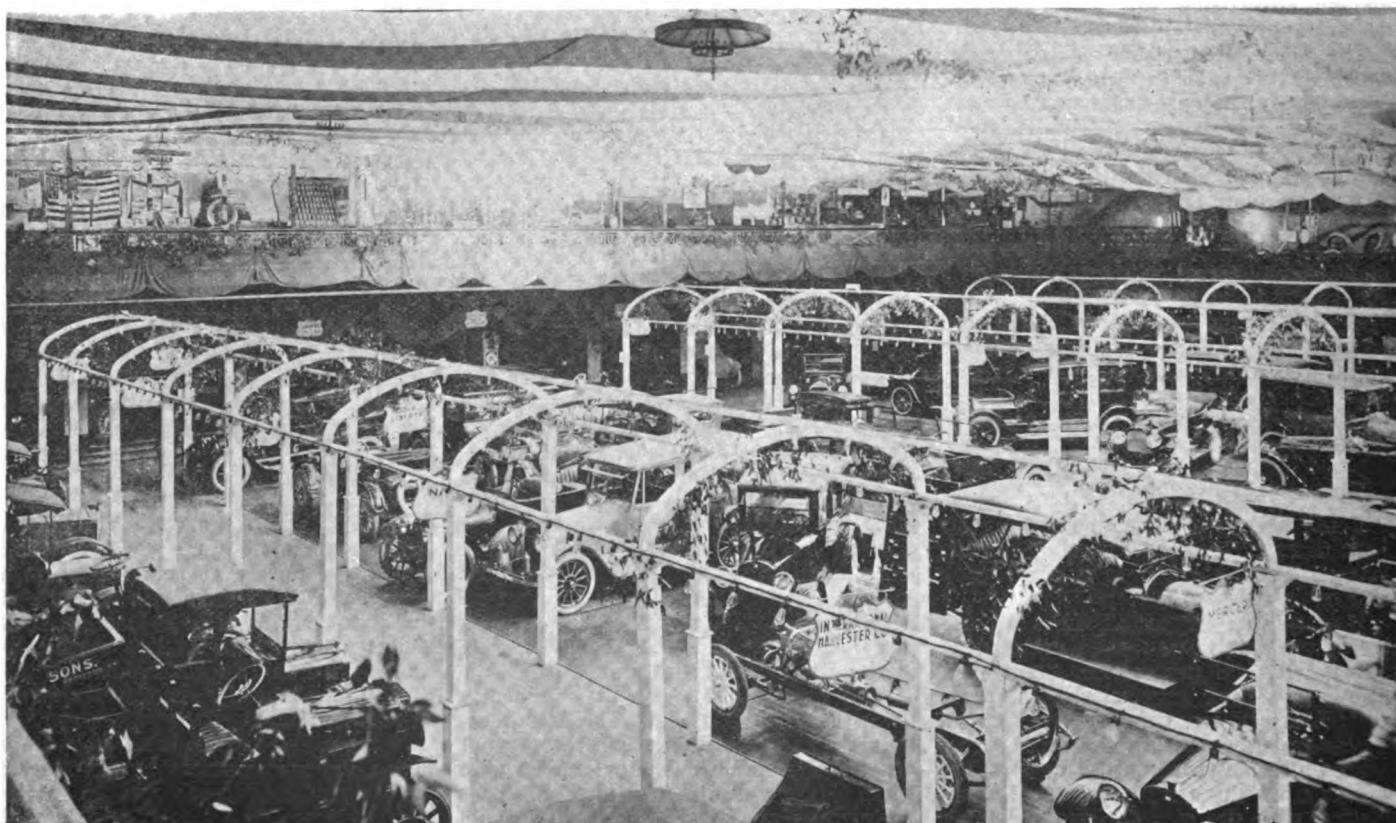
The show is in the Twenty-third Regiment Armory, which is one of the biggest single auditorium motor show floors in the United States, being 196 x 295, and being exceeded by the Baltimore armory by only about four or five feet each way. The Brooklyn floor has 57,820 feet and enough corridor space to make it about 60,000, which, however, is exceeded by the floors in several loft type show buildings.

The show opens at noon and closes at 11 p. m. The crowd comes mostly in the late afternoon and evening. The attendance is drawn from both Brooklyn and Long Island, a populous island area, on the eastern tip of which Brooklyn is located and which is fed by this city.

Business prospects are good. The dealers make the same statement that is made at other shows this season, which is that the crowd is of a buying nature. It is deeply interested, and some sales in the thousand-dollar class were made the opening night.

One of the features and a crowd-getter is the ceiling, which is made up of an American flag, 260 feet long and 156 feet wide. The stripes are 12 feet wide. The blue field is 84 x 120 and the stars are 6 feet across. Decorator Frayon says it is the biggest flag in the world.

Coming at the opening of the spring season, the show has better business aspects than some of those that are held earlier in the winter. The roads of Long Island are among the best in the world, there being miles and miles of good macadam, making cars usable all winter with the exception of a short period, when heavy snows make going bad.



This view is across the Newark show in which the decorative feature drew good publicity

There are quite a few dealers attending the show from Long Island. There are many small towns scattered around the island, and distributors have as high as 25 dealers, most of whom attend their distributors' exhibition.

The cars in the show could have been better arranged by the exhibitors. Too many of them stand head on to the aisle, so that it is possible to count from 6 to 10 noses poking out toward the aisle just as cars are placed in a garage. This gives an appearance of monotony and prevents proper display of the cars. The decorative scheme is good, although the decorator had trouble getting set on time because of labor troubles.

The Kansas City before-the-show salesmanship meeting story in Motor World has been noticed by some of the dealers, and the result is a series of in-

dividual sales meetings at which show salesmanship is given intense attention.

One of the feature exhibits is a school car shown by Bishop, McCormick & Bishop. This is used at the Bishop place of business to teach buyers how to drive Dodge cars, and is used at the show as a sales argument, illustrating the attention buyers get from the dealer and the assurance that women members of the buyer's family will be taught to operate the vehicle.

The show is run by a committee made up of Chairman I. C. Kirkham, C. M. Bishop, L. J. Seebeck, A. D. Corwin, F. Kengeter and A. E. Randall, the latter of whom is president of the Brooklyn Motor Vehicle Dealers' Association.

The exhibitors in the car show and the truck show and those who show in both follow:

rather than in the aisles. The sales reported were somewhat in excess of last year and the prospects were beyond all expectations. It was distinctly a business show and justified the optimism of Newark dealers who have taken the ground that the public has the money and is in the market.

The population in Newark this year is expected to increase by not less than 150,000. It is estimated that 60,000 new workmen will be employed before the end of the year in the new munition and similar plants within the Newark district. Already a good proportion of this estimate is at work. These men are receiving pay which is said to average about \$35 a week, and a large number of them, having more money than they ever had before, will be in the market for cars. At the present moment, partly due to railway and trolley congestion, owing to lack of coal and partly to the fact that the influx of labor is too great for the railways to handle even under normal conditions, thousands of these men are going to and from their work in trucks and all kinds of cars. There are not enough trucks to go around and they are at a premium everywhere. The Newark dealers seem, therefore, to be optimistic with good results.

Horace A. Bonnell, the secretary and treasurer of the exhibition company, says that he is confident of a wonderful era of prosperity in the motor business. He believes that this year's show has given a further impetus to dealer and public alike and has encouraged the former to new activity in advertising and pushing all branches of the motor business, but especially trucks and commercial vehicles. Purchasers have been until lately a little diffident but are noticeably more active in their demands and interests. The enthusiasm with which they at-

Newark's Show Exceeds Them All Except 1916

Never Has There Been a Bigger or Better Exhibit in This Jersey Town Except One Year When the Attendance Was a Little Larger

The automobile show held in Newark, N. J., Feb. 16 to 23, under the auspices of the New Jersey Automobile Trade Assn., in point of attendance and receipts exceeded all previous shows with the single exception of that in 1916, notwithstanding the fact that the weather this year was not all it could have been wished, and that there were two particularly rainy nights.

The show occupied 60,000 sq. ft. of space in the First Regiment Armory

devoted to passenger cars and trucks with a few semi-trailers and a gallery full of accessories. No tractors were shown, as Newark is not in a geographical condition to cater to the farming interests. It is, however, the center of a very rich suburban community with a population of some 2,500,000. The attendance at the show was in excess of 50,000, and it was noticeable that the public came with serious intent, and that the crowds were inside of the booths

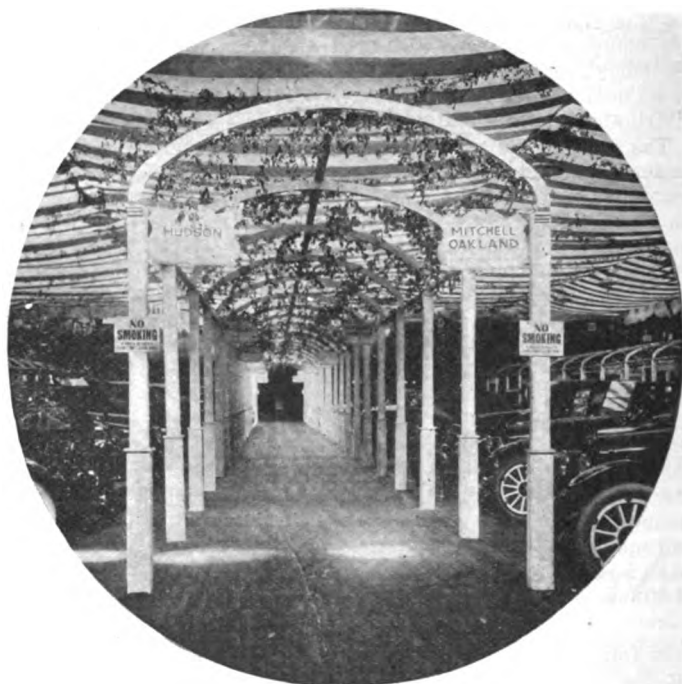


The Newark show was all dressed up and drew a big crowd. The arches over the aisles were one of the features

tended the show was exceedingly gratifying. Mr. Bonnell sees nothing but brightness for the industry ahead.

Nearly every standard type of car, truck and commercial vehicle was shown and war necessities in the shape of army trucks, ambulances, etc., were conspicuous. The hall was beautifully decorated and band concerts were given afternoon and evening during the entire show.

Take a look down
the arched aisle in
the Newark show



Portland Show Paves Way for a Big Summer Business

The Farmers Have Money
and Are Willing to Spend It

PORTLAND, ORE., Feb. 23—Portland's ninth annual motor car show, which ended Feb. 13, was the most successful ever held.

A very careful summary of sales made places the grand total at \$608,611.30. The total includes truck and tractor sales, as well as passenger cars, and is business on which cash deposits were made. It is virtually three times as great as the total of sales at the 1917 Portland show, when sales, so nearly as they could be estimated at that time, aggregated about \$200,000.

The show was directly under the auspices of the Dealers' Motor Car Association of Oregon, and M. O. Wilkins, president of the association, managed the show. The result was so eminently more satisfactory that never again will the dealers permit the show to be privately handled.

Admissions to the show reached a total of 16,394. One feature of this year's show that indicates the wide interest in motor cars not only in the large industrial centers of the Pacific Northwest, but through the outside districts as well,

was the large number of visitors from the territory. A total of 1400 railroad tickets were validated by the show management, as compared to only 162 in 1917.

For some weeks prior to the show, the Portland dealers put on an experimental advertising and publicity campaign in the country press to interest up-state dealers and, particularly, the farmers in the coming show. The result proved the soundness of this campaign.

There was a particular reason for making it desirable to interest the farmers in the show. The farmer and the big rancher in the Pacific Northwest this year are literally rolling in money. Added to the fact that for the third year in succession prices for wheat, farm produce, cattle, sheep and wool have been exceptionally high, is the fact that recent weather conditions have assured big crops this coming year.

And as he has paid off the mortgages and amassed a bank account, the farmer has turned to the motor car. In the great wheat and wool growing territory of eastern Oregon and eastern Washing-

ton, particularly, dealers have been unable to meet the demand from ranchers and stockmen for cars.

These men buy high-priced cars, and they pay cash. Moreover, they demand style and comfort. It is a fact that more enclosed cars have been sold in the sparsely settled eastern Oregon districts this year than in the city of Portland, which has nearly one-third of the state's population.

With the acquirement of passenger motor cars, the Oregon farmer has become a convert to motor equipment all around. Consequently, increased interest in motor trucks and in farm tractors. This applies as much to the small farmer of the Willamette Valley section, where little wheat is grown, the cultivation being more intensive, as to the big ranchers of the wheat sections.

With all this in view, the Dealers' Motor Car Associations made a strong feature of the truck and tractor department of their show. The importance of the motor truck and the farm tractor as adjuncts to the food production campaign, in which the Pacific Northwest must take so big a part, were emphasized in the advertising and advance publicity, as also was the fact that the passenger car is in war-time more than ever a necessity.

Whereas at previous shows only two or three tractors at most have been exhibited, sixteen were on display this year, and tractor sales were remarkable. One exhibitor did a show business aggregating \$65,000 in farm tractors. Another's business was \$45,000.

The trucks and tractors for the first time in Portland were given a real department. They filled the entire basement space. The total space available for both departments was 45,000 sq. ft.

The Oregon farmer is by no means the only live motor car prospect in this section this year. Money is more plentiful than it has been in a good many



The accessory exhibits in the Brooklyn show were one of its features

years. The prosperity of the agricultural and livestock districts are in part responsible. Another huge prosperity factor is the immense growth of the shipbuilding industry, both steel and wood, in the past year.

Twelve months ago both these industries were infants. Today the Portland water front is alive with great shipbuilding plants. Twelve steel ships are now on the ways here, eight have just been launched, and 49 more are under contract. Along the Willamette and Columbia rivers between Portland and the sea, approximately 100 wooden ships are being built or are under contract. Immense payrolls have resulted. Wages are higher than ever before.

An entirely new set of motor car prospects has been created by this condition. Men working in the shipyards are strongly in the market for lower-priced and medium-priced cars. The prosperity has extended to those of a higher scale of living, and medium-priced cars are likewise in great demand.

In fact, the motor car business is better than it has ever before been in Oregon and in Washington. The show proved a remarkable stimulus to this business. The year 1917 was a very prosperous one to dealers, and virtually without exception they look to 1918 to be even better. The fly in the ointment, of course, is the question as to whether cars can be obtained, for already there are many unfilled orders and lack of transportation is causing much worry.

But here, again, there is much ground for optimism. Fred W. Vogler, president of the Northwest Auto Co., has analyzed the situation very closely, and his conclusions are valuable.

"The outbound freight movement from the Northwest is always greater than the inbound movement," says Vogler, "and this condition is going to be still further accentuated. For instance, the Government's airplane spruce drive now in progress in Oregon and Washington will require many freight cars to transport the spruce East. The normal lumber movement will also be heavy. Wheat shipments will take many cars. Wool must be shipped, too. All this will create a great shortage of freight cars, which can only be filled by the movement of empty cars West.

"Therein lies the opportunity of the motor car dealer of the Northwest. These empty cars can, and I am sure will be utilized to bring out automobiles. I think the coming spring and summer motor car business in the Northwest will be the greatest in its history, and I am confident that the cars will be obtained in the manner I have outlined."

Oregon and Washington are states of great distances, far greater distances than Eastern folk can easily realize. For instance, populous towns are comparatively few, and always far between. The nearest town of size to Portland is 50 miles away. Traveling salesmen, who more and more are using motor cars, think nothing of traveling 100 to 150 miles per day.

People in the Northwest can save time, money and attend to business far more efficiently with motor cars than without. Heretofore, for several years, money has been anything but plentiful. Now that prosperity has come, men who needed cars before in their business are buying them.

The farmer is buying cars because they bring him closer to the city. A 20 or 30-mile drive to town is nothing in a motor car. Without one, it is something to be undertaken once or twice a year. With the motor car, the farmer and the farmer's wife have gained a new contentment, and their hearts are

in the work they must do to raise food for the Allies.

The Pacific Northwest has been unthinkingly charged with not realizing that there is a war. This is untrue, and the Northwest is now buying cars because they increase its efficiency and capacity to produce the food, and timber, and ships, and spruce and wheat that the country needs. Incidentally, it is a live market today for passenger cars, motor trucks and farm tractors.

Thirty-eight lines of passenger cars and 108 different models were displayed at the show, and there were 35 truck models and 16 tractors.

Duluth Gave All Its Show Receipts to the Red Cross

And so Everybody Boosted for the Show, There Was a Big Crowd and Spring Looks Auspicious

DULUTH, Feb. 23—The fourth annual automobile exposition held under the auspices of the Duluth Automobile Trade Association and the Red Cross just finished the most successful show staged in this city, from the standpoint of attendance, number of exhibits and general interest displayed by the visitors. Much enthusiasm was aroused when the announcement was made that all proceeds would go to the Red Cross, and everyone became a potential booster for the show, the interest growing until it reached into the Range country, and the northern part of Wisconsin, Michigan and Minnesota.

It is estimated the attendance will exceed 25,000, breaking all previous records. More than 100,000 sq. ft. of space was devoted to the show, which had on exhibition cars, trucks, tractors, accessories and everything that goes with automotive power, besides the numerous Red Cross booths and the food conservation booth.

Because of the peculiar topography of Duluth, which is 25 miles in length, the general utility of the automobile has come to mean much to outlying residents. The war industries, which are numerous in this city, are employing thousands of men, whose wages permit the purchase of cars, and in one section in particular, Morgan Park, every resident is the owner of a popular make of car.

Business in general demands automobiles for efficient and quick service, and the automobile show this year did more to convince business men of the necessity of automobiles with which to carry on their business than ever before. From a business standpoint the dealers are more than gratified with results.

Patriotism marked the show this year above all else, and Duluth took the first step said to have been taken in the country, when the dealers decided to foot all the expenses and turn over the gross proceeds to the Red Cross. Patriotic decorations predominated, with the flags of

the Allies being prominently displayed throughout the building.

The Red Cross committees assumed charge of the entertainment features, and each day presented a patriotic program. The days were signified as follows: Monday, Patriotic day; Tuesday, Allies' day; Wednesday, Head of the Lakes day; Thursday, Industrial and Fraternal day; Friday, Range and Old Settlers' day, and Saturday as Red Cross day.

Prominent speakers spoke on patriotic subjects each night, emphasizing the duties that devolve upon the citizens to help the country win the war. In this connection, Father S. A. Iciek, prominently identified with all the patriotic movements, pointed to the automobile, truck and tractor, saying, "These have come to liberate the world from German autocracy. It is through these wonderful inventions that America will win the war. In the battles on the French front it was the automobile that served as the greatest ally to the French troops in going over the top."

Every foot of space was taken a week before the show opened, and many dealers resorted to their showrooms to display their cars. The general interest awakened among the visitors brought many of them to the private salesrooms. Taken all in all, the show this year eclipsed previous exhibitions, in that more sales were effected and more beneficent results were obtained by the showing of the various types of cars, and demonstrating the value of the truck and tractor.

It is expected that the Red Cross fund will be increased \$25,000 as a result of the show, and this amount will go towards the purchase of surgical dressings. The Duluth people are gratified at the outcome of the show, and have expressed their appreciation at the wonderful support afforded the exposition.

No war tax or income tax were paid by the show this year, because of the benefit for the Red Cross.

Trucks and Tractors Find a Place in the Syracuse Show

The Weather Was Bad but the Crowd Was Good and Central New York Is Happy

SYRACUSE, Feb. 23—The tenth annual show of the Syracuse Automobile Dealers' Association, held during the week of Feb. 18 to 23 in the New York State Armory building, exceeded all previous exhibits in the number of retail sales made and new prospects obtained.

Attendance records this year were lower than 1917 figures on account of inclement weather throughout the entire week of the show. There was considerable uncertainty about opening the display on Monday, as planned, because of the Garfield Monday closing order, which was revoked, however. Because of this no lithographic signs were distributed this year and the expenses for this method of advertisement were devoted to announcements in the local newspapers. The attendance for the first 2 days was 20 per cent below normal, the management reported, due to heavy snowstorms.

There was no difficulty in handling the show this year because of the new tax regulations. With the exception of Monday night complimentary tickets, paid by the show managers, no passes were issued. Credentials were obtained for the military officers who were obliged to visit the armory in connection with their duties, but all dealers who received season tickets were obliged to pay the war tax on them in accordance with the tax requirements. The price of the general admission was raised from 35 cents to 36 cents to permit the proper 4-cent tax assessment, but on Thursday night, set aside as Society Night, the usual admission of 50 cents prevailed, the show management paying the war tax.

Passenger car, motor truck and accessory exhibits occupied 45,000 sq. ft. of space in the armory building, the same as last year. The truck display during the present show, however, was considerably larger, with a number of new makes added to last year's list of machines.

The appearance of farm tractors for the first time was a feature. But two models were shown, the Happy Farmer, manufactured by the Lacrosse Tractor Co. of LaCrosse, Wis., and the Adapto tractor made by the Adapto Tractor Co. of Geneva, Ohio. Eight Happy Farmer tractors were sold by the local exhibitor while several sales were made at the Adapto Tractor booth.

Many truck agents in the city showed considerable interest in the tractor and the coming season should find a number of new tractor dealers. A prominent dealer at the show stated that he expected to inaugurate a tractor department in connection with his motor truck business.

The prevailing opinion among all of the exhibitors was that the net value of

the show as an advertising proposition was higher this year than last, every dealer agreeing that more persons who are contemplating purchasing automobiles for the first time had attended. Nearly every salesman reported more new prospective buyers than in 1917.

The business outlook in the neighborhood of Syracuse is excellent with all of the important industries, including steel and iron works, operating to full capacity on war orders. The Solvay Process Co., now extensively engaged in the manufacture of picric acid for the government, employs more than 5000 men, while the three automobile plants, the Franklin, Chase Motor truck and Sanford motor truck, require a similar number.

The two drill halls on the main floor of the armory building were decorated for the show in a Japanese setting, which was artistically contrasted by clusters of allied flags. Passenger cars were exhibited in the first section, while the other was devoted to the display of motor trucks. Accessory exhibits were arranged in the basement of the building.

Albany Show Beats All Past Records

ALBANY, N. Y., Feb. 23—The eighth annual exposition of the Albany Automobile Dealers Association, which closed to-night, exceeded all previous shows of the association. It was opened at the state armory Saturday night a week ago by Mayor James R. Watt with a record attendance of 4000 people. There were 113 booths with 175 cars displayed.

The floor space used was about 4000 sq. ft., the same as last year, but included only passenger cars. In other years trucks and stripped chassis occupied half of the space and crowding was the result. The association decided that the space provided would not permit an adequate display of both types and the trucks were eliminated. Although weather conditions were unfavorable the entire week the attendance was about 25,000, the same as last year.

This year there were exhibits of electric passenger cars for the first time. Any doubt that may have existed in the trade regarding 1918 prospects were emphatically dispelled by the public manifestation of interest shown as soon as the show opened and nearly every dealer claimed a sale or sure prospect on the opening night.

The sales indicated a decided preference for closed cars, which may be the result of the severe winter, fresh in the memory of prospective buyers. They came from a radius of 100 miles around

Albany, and the efforts of the salesmen to please them has made the show a most valuable advertising proposition for the Albany dealers. Sales reported greatly exceed those of last year's show. Buyers of cars as well as a majority of prospects appeared to be professional men, merchants and those living in the suburban villages, indicating that the desire to own a motor car is influenced by utilitarian purposes.

Dealers estimate that at least 90 per cent of all persons showing interest were for other than for the pursuit of mere pleasure. There was also the workman whose increased salary directed his attention to the purchase of an inexpensive car with his savings, but nearly everyone had a real reason for wanting to buy. Farmers came also in good numbers and talked about the big crops and high prices for produce that they expected would enable them to buy a motor car.

The general admission was 25 cents and the management paid the war tax, but 5 cents was collected on each pass. The government regulations were all adjusted at a conference between the officials and the collector of internal revenue to whom the income tax report will be made.

Wednesday was "Dealers' Day," and a luncheon was given 150 visiting dealers. Alfred Reeves, general manager of the National Association of the Automobile Chamber of Commerce, was the speaker, and his address renewed the enthusiasm and optimism that was the prevailing spirit.

Maxwell Prices Raised

DETROIT, Feb. 25—The prices of Maxwell passenger cars and trucks will be increased on March 1. The prices follow:

PASSENGER CARS		
Model	New Price	Old Price
Touring	\$825	\$745
Roadster	825	745
Touring, with winter top	935	855
Roadster, with winter top	910	820
Berline (6-passenger town car)	1,175	1,095
Berline, with wire wheels (optional)	1,275	1,195
Sedan with wire wheels	1,275	1,195
Chassis with cowl	735	655
Chassis with delivery body	810	730
TRUCKS		
1-ton truck chassis	1,085	985
1-ton truck chassis with cab and windshield	1,125	1,025
1-ton truck chassis with stake gate	1,180	1,080
1-ton truck chassis with combination box stake	1,175	1,075
1-ton truck chassis with combination box	1,135	1,035
1-ton truck chassis with canopy body	1,195	1,095

The prices for Canada and foreign countries will remain the same.

Erie Show Well Attended

ERIE, PA., Feb. 25—The annual show of the Erie Automobile & Supply Dealers Assn. was brought to a close Feb. 23, and exhibitors believe it to have been entirely successful. The show was crowded every night, the total attendance eclipsing all previous years.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Responsibility for Stolen Property

Editor Motor World: What is the responsibility of a garageman if Moto-Meters are stolen from cars stored in his garage? Some time ago three Moto-Meters were stolen from cars which are regularly stored in my garage. Of course, I replaced them because the car owners were regular customers, but I would like to know if dealers are under any legal obligation to do this.—P. M., New York City.

Answer—As to the garageman's legal liability for a stolen Moto-Meter, that depends on the care he has taken of the property left with him.

In the ordinary case the court or jury would answer that if a proper watch had been kept on the property it would not have been stolen and will decide against the garageman.

The good business man will replace small articles stolen every time rather than lose a customer.

You May Collect If You Hurry

Editor Motor World: Is there any way to collect an account from a man who has been drafted or enlists in the United States Service? We have one such case. The man is well fixed, but has been drafted and refuses to pay.—Pittman's Ford Garage, Durango, Cal.

Answer: You can collect in the usual way by instituting suit against your debtor, but you must do it quickly, because a bill has passed Congress which declares a moratorium for men in the service for the duration of the war. This bill will become effective when it is signed by the President. The details of this bill will be printed on this page when it finally becomes a law.

Should Be Made to Pay

Editor Motor World: A gentleman bought a four-cylinder car from us, brand new, ran it for 1500 miles, and from my experience in repairshops, he neglected to put oil in it, as he burnt out a bearing, and the rod coming loose knocked a hole in the cylinder and we had to replace the block and the bill came to \$42.16, which he refuses to pay, claiming that it was the fault of the oiling system, which we found clean and not clogged when we inspected the motor for the cause of the trouble.

Now, after running the car as far as he did and knowing that when the pump plugged the oil gauge would stop, was it not his business to notify us and not merely put in oil and go on after the motor started knocking?

He claims the oil gauge worked O. K., and the first thing he knew, bang! there was a hole in the cylinder; but from experience, bearings don't burn out like that.

Can you tell us who you think should settle?—A. L. Bennett, 420 East Henry Street, Charlotte, Mich.

Answer: From my experience with garagemen, there are very few of them who would hesitate over instituting suit against this kind of a customer. I think they would be justified in starting suit and should not have any trouble in collecting the amount due them.

Can Maker Be Held for Badly Constructed Cars?

Editor Motor World: A certain automobile concern in the city of Denver, Aug. 31, 1916, contracted with the Blank Motor Vehicle Co., Chicago, for ten Blank cars and purchased six. Four were sold and delivered, two remain in the hands of the dealer unsold, and cannot be sold because they are mechanically fundamentally wrong.

The dealer and his associates have made every effort to secure from the manufacturer a settlement which would be fair to all parties interested, but the manufacturer refuses to listen.

There are any number of witnesses who will positively swear that the cars are not right and are improperly constructed.

After the dealer had gone to considerable expense in establishing his business he was obliged to lose a large sum of money and eventually was forced out of business. The further details, if they interest you, will be gladly submitted.

What is your opinion?

Have you ever had a similar condition?

What information can you give that will enable the writer to discuss the matter with the injured party?—Harry G. Mooock, Business Manager, the Rocky Mountain Trades Association, Denver, Col.

Answer: There have been any number of cases decided by the courts where manufacturers and dealers have sold cars which were not as warranted or repre-

sented. In a number of these cases the cars sold were of such faulty construction that they failed to operate properly.

In a case of this kind the purchaser, of course, is justified in seeking to recover the damages caused by the fraud, misrepresentation or breach of warranty on the part of the seller.

In order to advise a purchaser properly in a case like this it is necessary to examine the contract and correspondence and to know every detail of the transaction. In cases of this kind the purchaser should put his claim in the hands of a local attorney, who, after giving the matter due consideration, can advise him whether or not suit is advisable and on what ground it should be brought. It is unlikely that the purchaser would be able to recover damages because he was forced out of business.

Was the Driver Negligent?

Editor Motor World: About two months ago a party coming home from a neighboring town ran into a freight train stopping across the railroad, damaging the automobile to the amount of about \$100. The night was very dark and a drizzling rain made it difficult to see any distance ahead. The driver was well acquainted with the road and knew just where the railroad crossing was. When nearing the crossing he slowed down to about 10 m.p.h. and looked for oncoming trains from East or West.

Not seeing or hearing any he drove ahead. A freight train was stopping on a side track across the roadway where there were no lights and no one to give warning of its presence there. Neither driver nor passengers saw the freight until about a foot away, and the result was two broken lamps, two fenders twisted and a broken radiator. Is the railroad liable for the damages?—Ed Schram, Addison, Ill.

Answer: There would not seem to be any question but what the railroad company was negligent in not having lights on the train.

If suit is brought the difficult question for the jury to determine will be: Was the motorist guilty of contributory negligence in driving his motor car at such a speed in the dark that he was unable to stop it in time to avoid a collision when his lamps made the train visible?

There is a chance that they might decide he was negligent. On the other hand, they might decide to the contrary.

Winter Business

The Business
Is There.
It's Up to
YOU

How Colorado

Boosts Winter Motoring

(And Winter Business, as a matter of course)

INSTEAD of less motoring, more motoring as a war demand is urged by leading business men and good roads workers of Colorado. Special emphasis, naturally, is put upon wider use of motor cars in business ways as both personal and national economy. Not only is the use of cars being extended into more and more lines of commercial activity in this region, but their year-round service is also being established as strongly as possible. So motor utility in general and winter motoring in particular are making rapid gains in Colorado.

Better business for the several branches of the motor industry, while a big commercial factor in itself, is really just a small part of the benefit resulting from this greater-motoring program. The motoring influence upon practically all the main industries of this territory helps to increase production in more ways than one, and this influence is showing a healthy growth.

Mining, farming, stock-raising, manufacturing, fruit-raising, oil-refining, merchandising and transportation all receive substantial benefits.

Motor stage lines are being extended, thus releasing badly needed railroad cars for government uses, and at the same time keeping on the move lines of business otherwise liable to suffer serious restriction.

Transfer companies are using more motor trucks, and are also building up rapidly their practically new branch of hauling household goods to nearby points, and to some not so near, thus decreasing the demand for railroad shipping.

The railroad situation is also aided to an important extent by the drive-away plan of distributing motor cars to dealers even 300 miles and farther from Denver throughout the year, and likewise by the drive-away from the eastern factories as largely as conditions will at all reasonably permit.

The motorizing of the transfer and moving business in Denver practically started two years ago, and has shown a really remarkable growth. At that time, for example, one leading firm had three

light motor trucks, another had just bought six, and several had none. Prominent among the non-motor group was the Weicker Transfer & Storage Co., which now has eleven motor trucks, including two 3½-ton Packards just added to its 1- and 2-ton fleet.

Other moving concerns have bought a goodly number of lighter trucks, particularly Federals and Smith Form-a-Trucks for city use. The Weicker firm has developed the long haul of household goods into a considerable business in itself, now reaching as far as Pueblo, 120 miles south and over a lesser mountain ridge half a mile higher than Denver.

Frequent trips are made to Aurora, Littleton, Colorado Springs, Morrison, Golden, Idaho Springs, Arvada, Broomfield, Lafayette, Boulder, Nederland, Longmont, Lyons, Loveland, Fort Collins, Estes Park, Greeley, Fort Morgan, Cheyenne (Wyo.) and other points less than 120 miles, and usually with a saving of both time and money for the families moving.

In fact, this firm declares itself able to make a goodly saving (the difference between \$45 and \$65 on some jobs, for instance) in cost of moving to places up to 50 miles and more, and can often make the shorter hauls for no greater charge than the cost of packing



Bear Creek Canyon Road, a part of the 65-mile circle trip through Denver Mountain parks, where city aids winter motoring

alone for shipment by railroad.

Besides, families need to be without their goods only a day and night (or less) instead of at least twice that long in case of shipping by railroad. This saves a great deal of inconvenience and sometimes rather heavy hotel expenses.

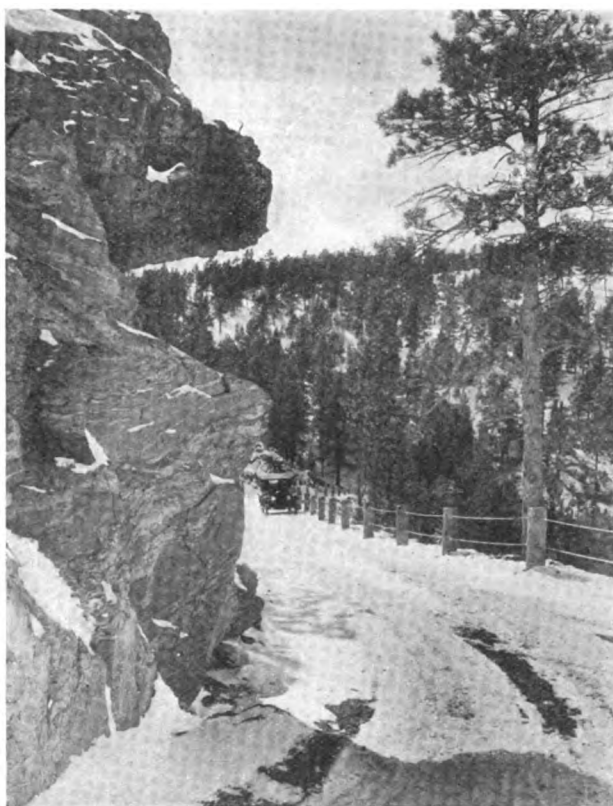
So this enterprise benefits the moving family, the truck dealer, the truck owner, the truck driver, the tire dealer, the repairman, the oil dealer, and actually the railroad itself at a time when equipment shortage is such a big problem as it is now.

More motoring calls for more and better highways, and for greater effort to keep roads open during the winter. This influence is recognized by leading good roads workers in Colorado, who urge an elaborate system of motor transportation throughout the state, both because of its practical business value in itself and also because it would greatly aid highway building and maintenance.

Greater industrial development, these builders claim, would result from this combined enterprise of greater motor utility and greater highway assets. And they point out wherein Colorado is a realm of vast resources and exceptional development opportunities.

Conditions for winter motoring are extra favorable in Colorado because of its mild climate. Thus far this winter, for example, there has been comparatively little cold weather or snow, except, of course, in the higher mountainous sections.

There have been no blockading blizzards such as have been extensive in other parts of the country, only a few short spells of zero weather, and an



Cable-guarded stretch of Lookout Mountain Drive in Denver Mountain parks, where winter motoring for business and pleasure helps winter business substantially. This road is also a link in the National Midland Trail to Idaho Springs and other Colorado points, and on to the Pacific Coast

average of good motoring conditions right along on the plains and in the lower sections of the mountains. A few snowdrifts have had to be cleared away on main roads, but these have not caused any serious problem.

Winter motoring has been substantially aided by Denver, which has pro-

vided special attractions to increase the enjoyment of both business and pleasure use of cars. The 65-mile circle drive through the city's mountain park system has been given a big increase of cheer through a \$10,000 stone lodge built recently at Genesee Mountain, 25 miles from Denver. This is also on the main road to Idaho Springs and Georgetown, where there is extensive business travel by motor. The lodge has a spacious dancing room, a huge fireplace, and a restaurant run by the city itself at moderate prices.

Besides being a cozy shelter from cold or storm, a resting place for tired travelers, or a rollicking place for social affairs, the lodge is a big attraction and convenience for tobogganing, skiing, snowshoeing and coasting parties. Thus it helps the motorizing of winter sports.

Mayor Robert W. Speer and other city officials hold that health-building sports may well be considered as a part of patriotic activity, especially since many people will have amusements of some kind as long as at all possible. So the city administration, while urging economy in all directions as a war measure, helps to make winter motoring more enjoyable—and thus more economical because more beneficial.

With the kind of scenery, climate and highways to make an ideal playground for motor tourists, Colorado is also using these natural attractions, along with her progressive spirit, to become a practical home for all-year motor utility. This program is supported heartily by the Denver and Rocky Mountain Auto Trades Associations and the Denver Motor Club.

Stock Up with Folders

Here is a winter business folder that has the right idea. Winter is the point and winter is indicated at the first glance. The message gets across at once. The folder describes in detail the Peerless radiator for Ford cars and gives the dealer all the talking points he needs in handling it. It is issued by the Corcoran Mfg. Co., Cincinnati, with a space for the dealer's name, and is of the proper size to be inclosed with letters or bills.

Make a point of collecting such literature. Study it. Let the good things soak in. Manufacturers are glad to furnish you with all you will take. Get a quantity. Have your name printed on them and send them to customers with your letters.

The practice of inclosing an attractive folder or circular in each letter you write is a good one. Get the habit and watch results.



South Wants Cars

SAVANNAH, GA., Feb. 22—Savannah dealers are impatiently awaiting spring deliveries.

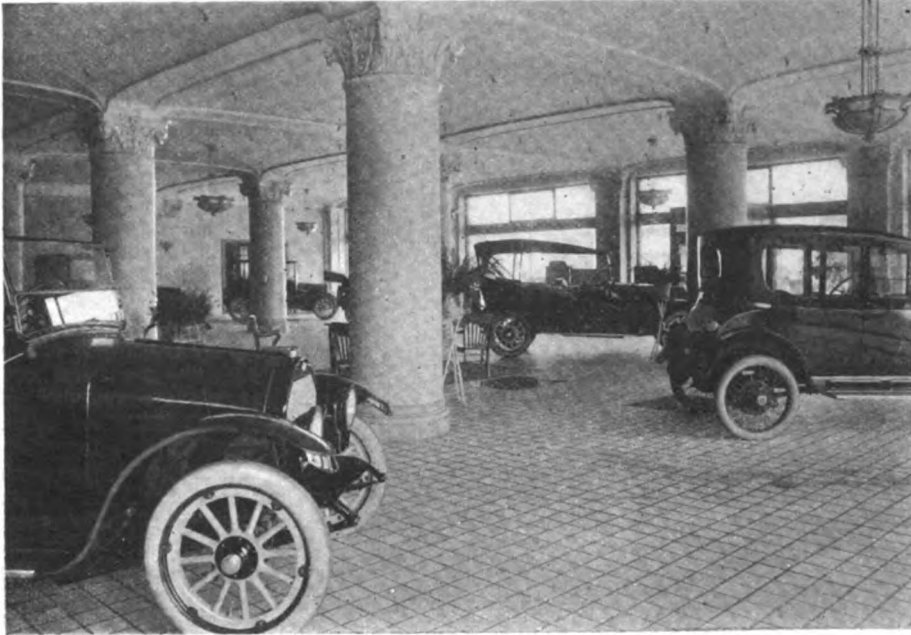
The general impression among the dealers is that cars are going to sell and sell fast this spring.

According to one dealer the business this spring will be largely in trucks, and he says that if he had them on hand he could dispose of six of the make he is agent for at once.

The railroad transportation problem at present in regard to the South is very bad. The embargoes placed on certain things to allow as free movement as possible of coal have hampered the movement of cars and the dealers are feeling it.

As soon as the weather moderates, and it has begun to get warm down here already, the dealers expect that deliveries and shipments will be more prompt and things will brighten up generally.

Speed and Low Cost Aims in



The salesroom, where the Overland is sold, is roomy and possesses good merchandising atmosphere

Jobbing Experience of Years Combined in Establishment of Indianapolis House

INDIANAPOLIS, Feb. 24—The Gibson Co., accessory jobber and Overland and Willys-Knight distributor, has moved into a new home. The plant represents in design and operation the most advanced ideas known to the trade. The building is a five-story and basement structure of reinforced concrete. It contains in all 160,000 ft. of floor space.

A broad survey of the entire plant reveals not only practical features known and tried in other successfully-operated institutions, but it embodies some features that are "Gibsonian" in character.

The keynote to the plan is that of efficient service. The company, to carry out a policy of efficient service to its customers, has provided modern tools with which its skilled workmen can achieve the results desired.

The real interest of the new building begins on the main floor, in the wholesale sales and sample room, where a visitor is immediately impressed, not alone by the beauty of the plan but by the convenient arrangement of the stock. There is no evidence of lost motion or wasted space. Everything seems to have, and in reality has, a definite purpose. Two hundred feet of attractive show cases serve to attract interest; and next is the unique shelving arrangement.

The upper section of the shelving plan is a combination display and stock scheme. The stock on the shelf is concealed by a glass-encased revolving door. Within the door space on a solid back-



Above—This display, as is told by the sign, is of "automotive accessories," which is the future activity of every jobber

Right—A ramp to the second floor from the street saves time



Gibson's Modern New Home



JOSEPH M. BLOCH
Secretary and General Manager
of the Gibson Co.

ground is displayed the article of merchandise contained within the shelves. A customer makes his selection from the revolving display door; the door is swung open and revolves to a position where the article displayed and the order number under it are constantly in view of the customer and the salesman, who then fills the order from the stock in the shelf behind.

The lower section of the wall shelves is divided into bins and drawers. Another interesting feature is disclosed in the easy manner in which brake lining and belting are handled. Instead of the bunglesome system of suspending this stock upon a shaft, a set of racks with rollers inside has been provided. Each size of lining or belting has a separate compartment. The free movement of the roller permits easy handling of this stock

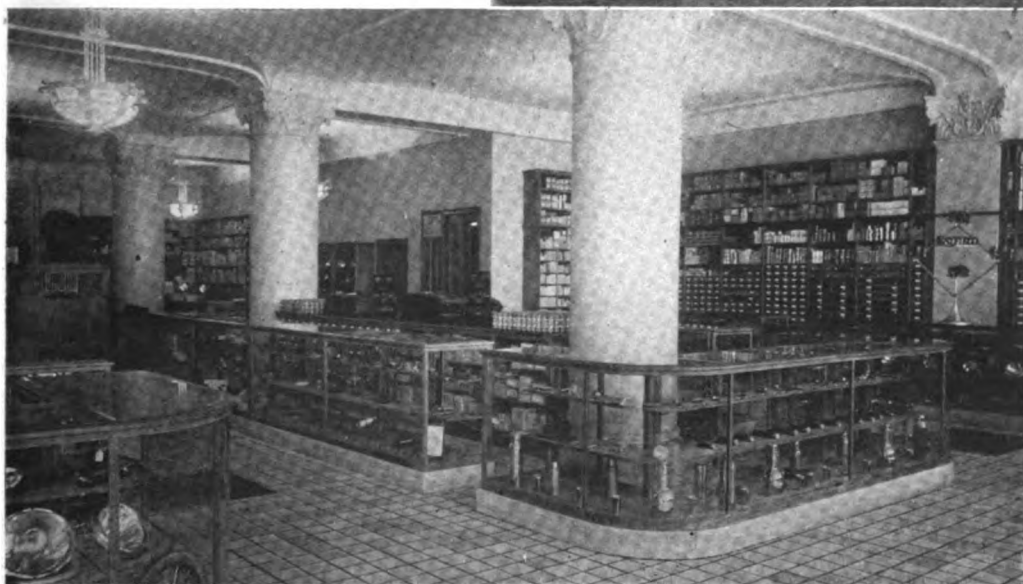
(Continued on page 35)



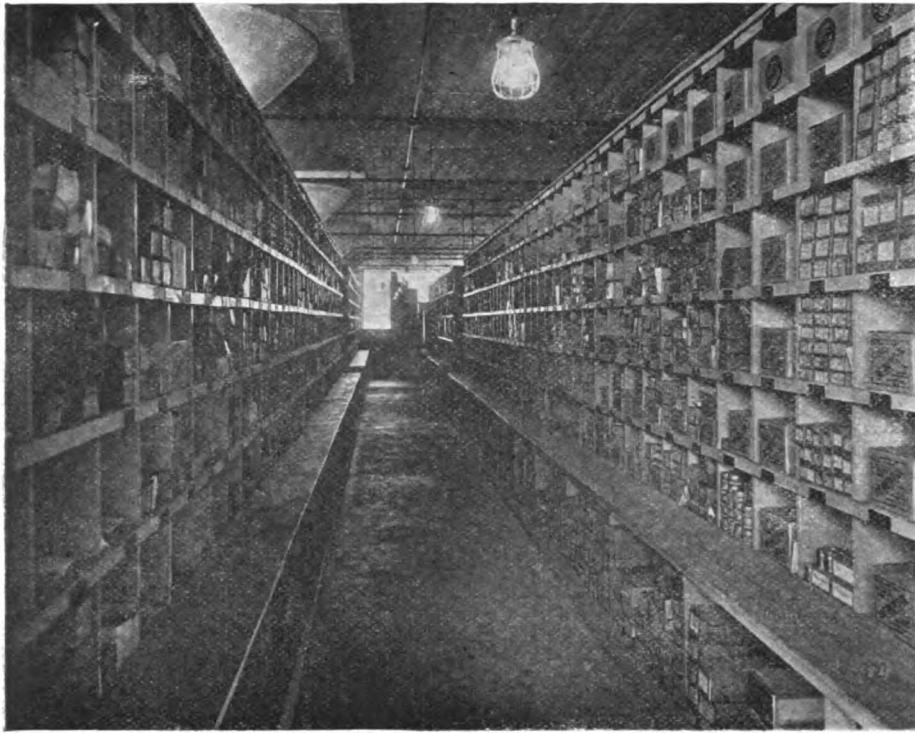
The foundation of this red-brick and terra cotta structure will carry three more stories



Above—Used cars are a business, not a problem. They are handled at a profit



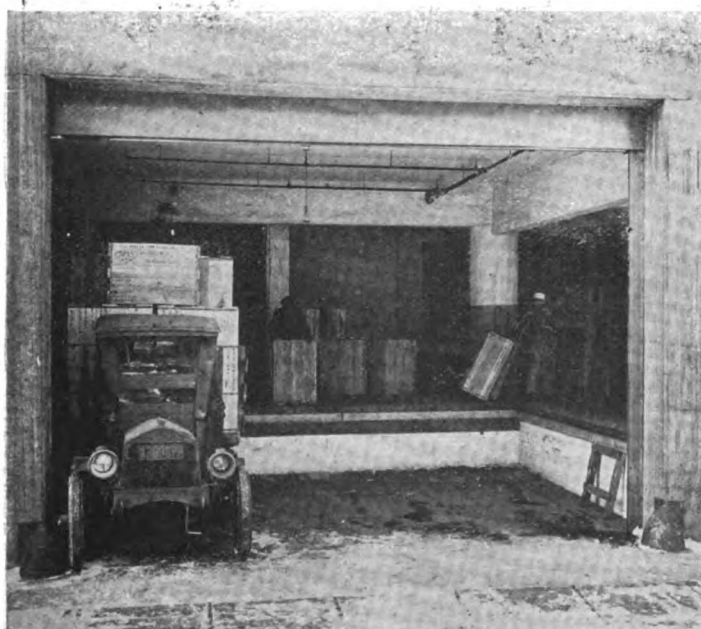
Left—The accessory salesroom is used as a model for dealers who desire the latest in merchandising ideas



Efficient Service a Feature of New Gibson Building

*Above—This is one of
thirty such aisles in the
Gibson stockrooms*

*Right—Truck and
water bottle conveyor
aid in quick handling
of batteries*



Sheltered loading platform with space for the trucks

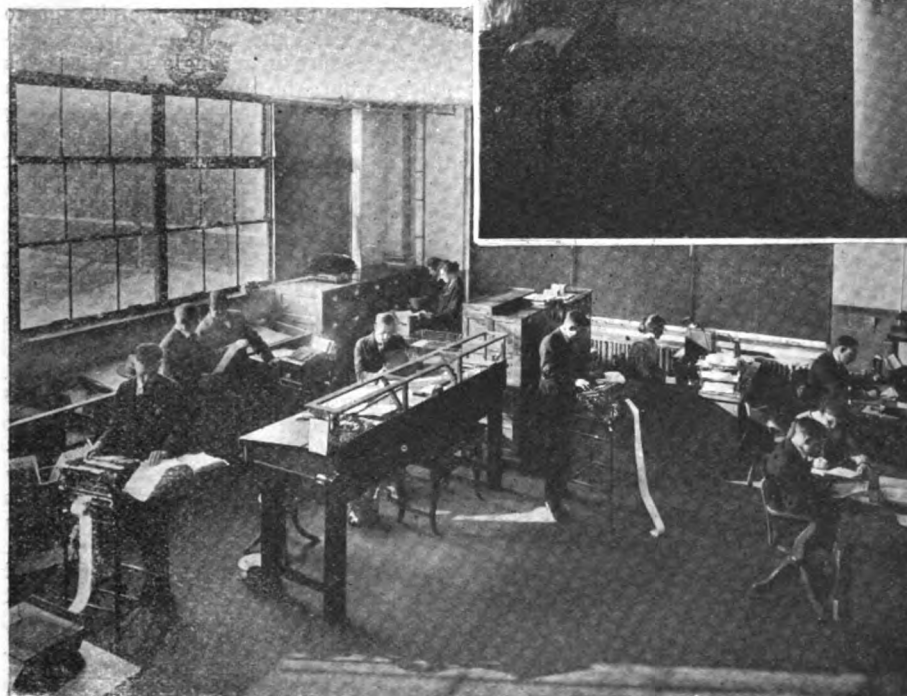


One corner of large packing and shipping department

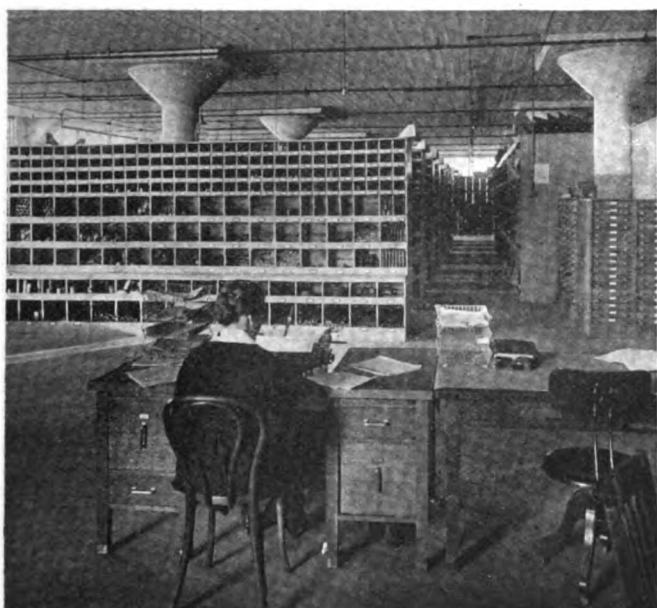
Proper Management of Business Saves Time and Money



Above—General office force has benefit of direct outside light and ventilation



Left—Accounting department with modern equipment keeps its work up to the minute



Overland owners and dealers appreciate this modern stock parts plan



Open, sealing and stamping machines save time and money in mailing room

Repairshop Shortcuts

From The Motor World Roadman

NO. 1565—BATTERY TESTING OUTFIT

A variable resistance device for testing starting batteries can be put together from materials always at hand in the shop. A screw clamp is bolted to one end of a board at the other end of which is fixed a wooden block. Pieces of carbon sticks are shaped flat on two sides and placed side by side between the stationary block and a similar movable block against which pressure is exerted by the screw. The battery and ammeter are connected in series as shown. A slight turn of the screw will vary the discharge from 20 to 300 amp. The load should be adjusted to about equal to the starter load and each cell tested with the voltmeter. A piece of asbestos is placed between the carbons and the board to protect the latter from the heat.—Hubert J. McComb, Ideal Auto Co., Fort Wayne, Ind.

NO. 1566—ADJUSTABLE RADIATOR RACK

A wooden rack consisting of a base, two blocks and two side pieces between which the radiator fits snugly. A small piece of board is placed between the base and the bench and the rack is bolted loosely through this, permitting it to turn in any direction. Every side of the radiator is thus accessible, without unnecessary lifting, and the radiator is always held securely and conveniently while the work is being done.—Paul A. Kent, Wilson & Olm, Waukegan, Ill.

NO. 1567—FRANKLIN PISTON-RING TOOL

A device for the convenient insertion of Franklin pistons in their cylinders, and which holds the rings in position automatically. It consists of a heavy iron ring on one face of which is ground a feather edge fitting over the cylinder head. The ring is slotted as shown. The piston with rings in place is easily passed through the ring into the cylinder. The ring is then lifted off, the connecting-rod passing through the slot.—F. V. Price, Elizabeth Auto Co., Elizabeth, N. J.

NO. 1568—BENCH TOOL RACK

Consists of four boards nailed or screwed together in the manner shown, leaving a rectangular space which fits on upright piece of pipe or rod. This is

supported in a base improvised from any suitable odd part, from a differential case to a small pulley. The rack turns on the rod and all eight surfaces are readily accessible. It will hold a large number of tools and is a great space and time saver.—R. M. Kirst, Mishicot, Wis.

NO. 1569—FRANKLIN PISTON-RING TOOL

Injury to the thread of an axle housing ordinarily necessitates the removal of the axle for re-threading, a work of time and trouble. A device for performing this task quickly and effectively is shown. The axle housing of a National car having been stripped of its thread, the new thread was cut by an improvised tool made from a Ford brake drum and three pieces of tool steel. Two of the latter are rigid and the third is adjustable through a short slot. After the three pieces were bolted to the drum a thread was cut in their ends. They were then hardened and the device used as a hand cutter without the necessity of removing the axle.—S. L. Reed & Co. Garage, Elizabeth, N. J.

\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. The field is open to everyone. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

NO. 1570—UNIVERSAL VALVE GRINDING TOOL

To avoid the danger of irregular grinding of valves due to indirect pressure which the ordinary tool is apt to exert, a grinding tool insuring a constant pressure in a single direction was made from the universal joint of a Franklin carburetor needle attached to an ordinary brace. A perfect seat is thus assured regardless of the angle at which the tool is held.—F. V. Price, Elizabeth Auto Co., Elizabeth, N. J.

NO. 1571—CASE AND TABLE FOR VULCANIZING SHOP

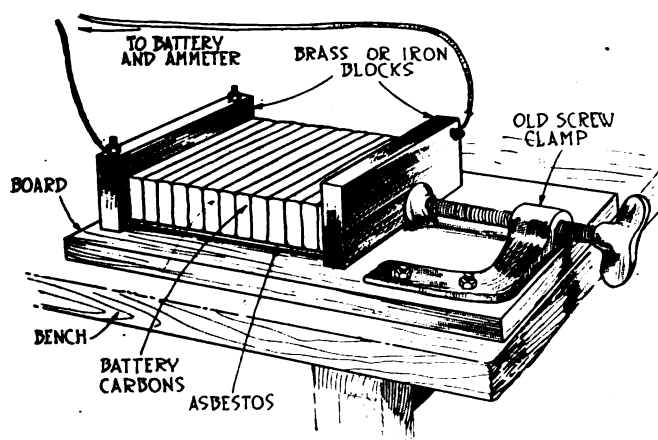
A combination wall storage case and folding table affording storage space for crude rubber, fabric, cement, etc., together with convenient measuring and cutting devices. The edge of the table is cut at an angle of 45 deg. to correspond with the fabric bias. A movable straight edge is provided parallel with the diagonal edge of the table and a scale is marked at the side. The fabric is measured on the scale as it is unrolled and cut with a knife along the straight edge.—Sumner & Ginder, Alamoosa, Cal.

NO. 1572—ADJUSTABLE LAMP STAND

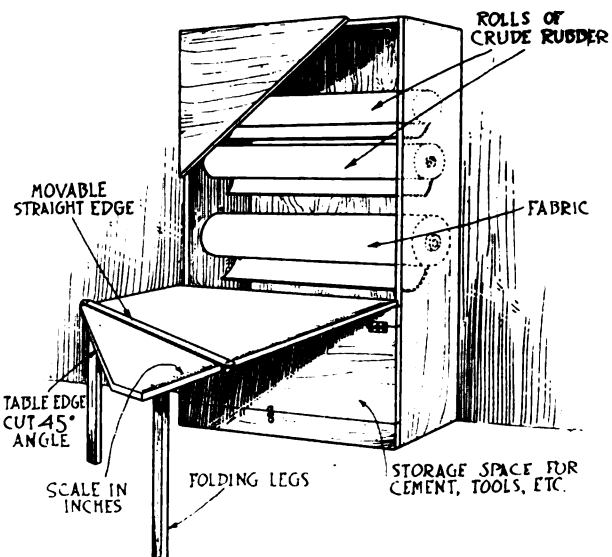
A movable stand for supporting a lamp at any angle or height for repair work can be made of a jointed wooden upright, the joints being held in any position by bolts with lock washers. The upright is supported in a discarded brake drum. A Ford headlight reflector is drilled out to fit a standard bulb socket and attached to the stand by a bolt which allows it to be turned in any direction. The stand can be placed anywhere in the shop in a moment and the plug attached to the nearest lamp socket.—William C. Johnson, Florence Garage, Florence, Wis.

NO. 1573—DOORWAY GUARD

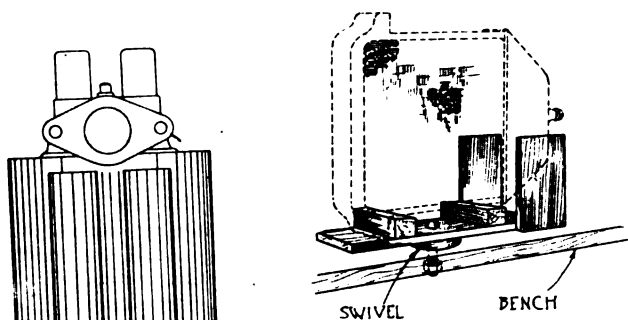
A small gate fastened to the large sliding door of a garage to protect the doorway when the door is open. It consists of a light wooden frame covered with wire and attached to the garage door by a rail upon which it slides. The rail supports the weight of the gate and the bottom is held by a roller. A counter weight, consisting of a few Ford axles, gives the proper balance. This is a great convenience in warm weather.—Florence Garage, Florence, Wis.



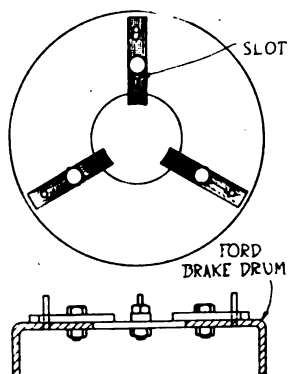
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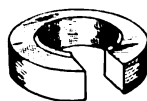
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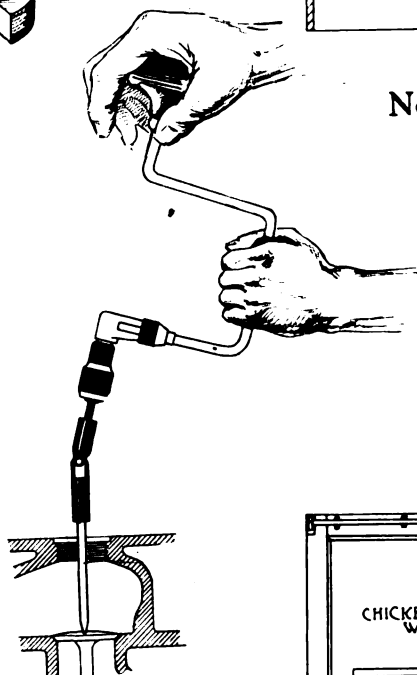
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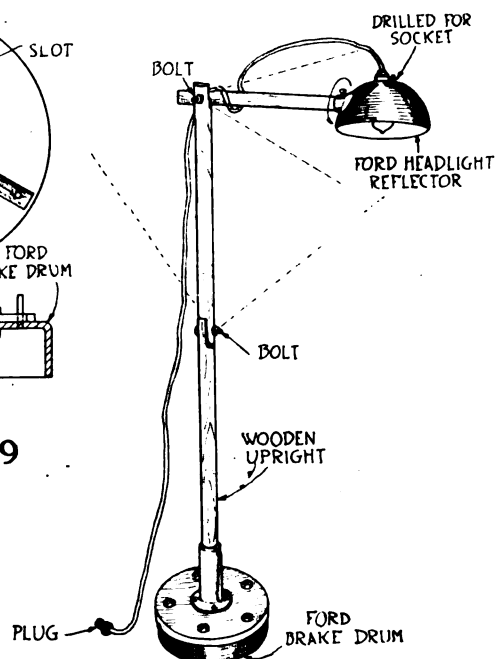
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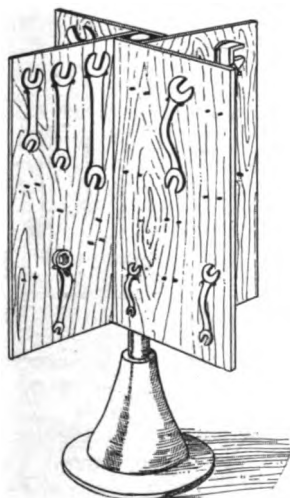
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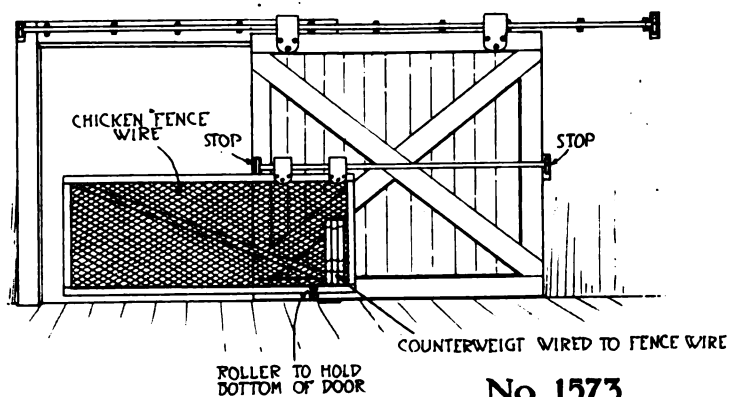
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No. 1573

A Department of

BETTER MECHANICS

No. 58

Warner Steering Gear Adjustments

Care and Lubrication

By S. T. Williams

WHEN the steering gear leaves the manufacturer it is packed with grease sufficient to care for from 4000 to 5000 miles of service. During this time the grease cup on the hub of the case should be kept refilled and at the end of 4000 to 5000 miles the pipe plug on the case barrel should be removed and the barrel filled with grease.

A good grade of graphite grease is recommended, and it is advisable to carefully add a small amount of cylinder oil, as the grease may not work into all of the parts. Several oil holes will be found in the hubs of the spark and throttle levers and a few drops of light oil should be placed here monthly. The hub of the steering wheel spider should likewise receive oil at the same time. If this is neglected there is a possibility of rust forming and the absence of an oil cushion promotes the possibility of noise.

Adjustments

In general there are three ways in which wear is evidenced. The first is by up-and-down motion in the steering column, the second side-play in the worm gear, and the third back-lash in the steering wheel.

Before any adjustments are made it is advisable to see that the steering gear is at fault. This is not often the case. Back-lash frequently occurs in some part of the wheel gear linkage. When this is the case if the steering gear be tightened, the parts may be pinched together, causing injury.

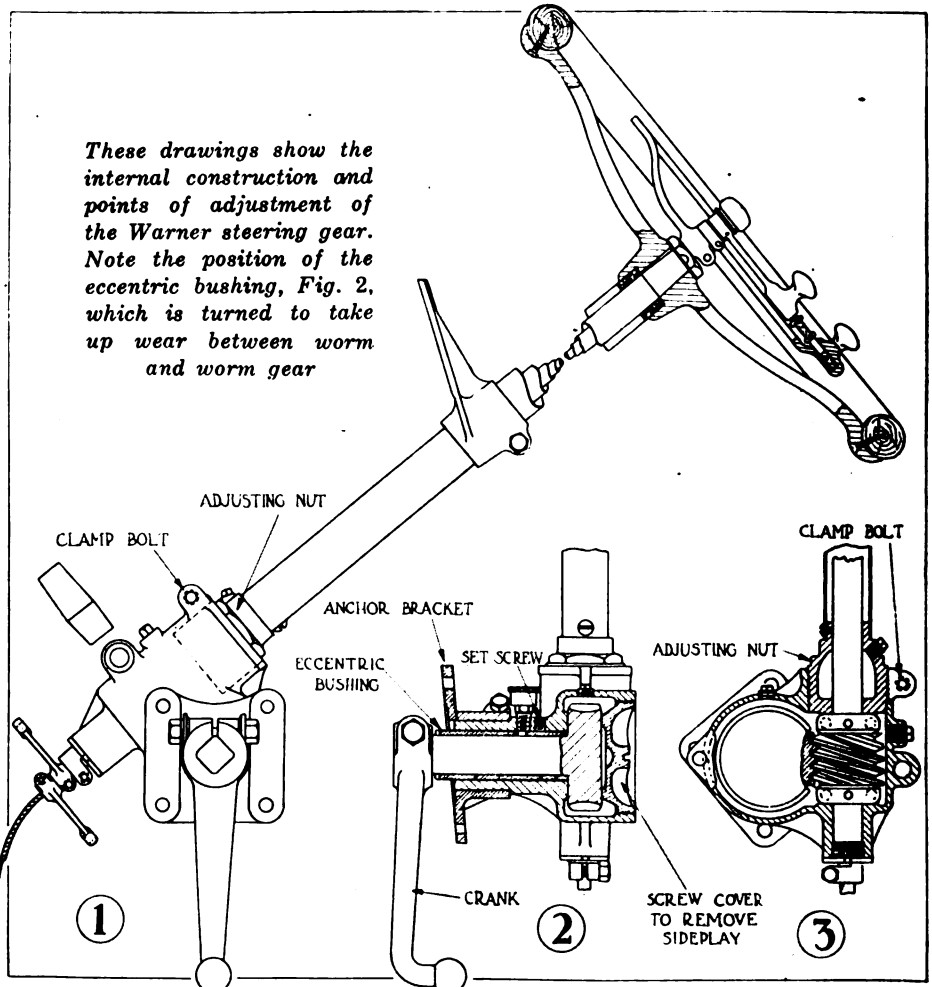
In making steering wheel adjustments, therefore, it is advisable to first disconnect one end of the reach-rod so that the steering gear will be isolated and the adjustments made without interference of other working parts. After this, the front wheels may be jacked from the ground; the various ball and socket joints lubricated and adjusted and the wheels trammed. It is needless to emphasize

the care necessary in making these adjustments.

Removing Up-and-Down Motion

In the course of a long period of service the gear may wear to such an extent that there is a slight up-and-down mo-

tion in the steering column. This may be removed by tightening the large adjusting nut, shown in the drawings, at the top of the thrust bearing directly over the worm. The first step is to loosen the clamp bolt Fig. 1, at the top of the case. The adjusting nut is then turned



until the up-and-down motion is removed. It should not be tightened beyond the point where the lost motion is removed, as to do so would pinch the bearing and increase the friction. After this adjustment is made the clamp bolt should again be tightened, to hold the adjusting nut in position.

Removing Side-Play

Side-play in the worm gear is evidenced by lateral motion in the cross-member attached to the crank. This may be removed by taking up on the screw cover, screwing directly into the inner side of the steering gear case (Fig. 2). The clamp bolt passing through the edge of the case is first loosened and the cover screwed in until the lost motion is removed. At the same time there should be no binding and the clamp bolt must be again tightened after the adjustment is made.

Remedy for Worn Gear Threads

After a long period of service the worm

gear threads may become worn to such an extent that there is play between the worm gear teeth and the threads of the worm. This is evidenced by lost motion at the crank. The remedy is to turn the worm gear until new teeth are brought into contact, and this is done in the following manner:

1. Loosen the clamp bolt and remove the crank on the gear shaft.
2. Turn the gear one-quarter revolution.
3. Replace the crank and clamp it in place.

By this a new quarter of the worm gear is brought into use and this adjustment can be repeated from time to time until all four quarters have been brought into play. The amount of adjustment thus possible is usually more than equivalent to the life of the rest of the car. But if all of these adjustments fail to take out the lost motion the worm gear can be adjusted closer to the worm by means of the eccentric bushing carried on the shank of the worm gear. This

bushing is loosened by means of a set screw in the hub of the steering gear case. If this has been loosened the eccentric bushing can be turned by means of notches milled in its outer end.

The steering gear is usually mounted by use of an anchor bracket previously bolted or riveted to the side member of the car frame. This bracket clamps upon the barrel section of the steering gear case and by loosening the clamp the gear may be set in any desired angle.

Another bracket hinged to the shaft is generally used to further support the steering column. By adjusting on these the steering gear may be shifted to meet the necessities of any special body that is being constructed.

Due to the fact that the steering gear is commonly the first unit assembled to the frame in constructing a car it is not ordinarily readily removed. Most adjustments can be made without removal and it is not advisable to remove the assembly unless conditions make it absolutely necessary.

How Maxwell Is Making Better Repairmen

The Creed of the Maxwell School

ONE year ago the Maxwell Motor Co. started its factory service school for the benefit of Maxwell salesmen, repairmen and owners. Since then it has graduated 350 men, and the number of inquiries received from these men for further information has been small, for the course is confined to those points that have been found essential to Maxwell maintenance.

The Maxwell is a popular car, and its service stations and owners are scattered over all parts of the country. Many of the service stations are out of the reach of the larger centers, cannot obtain technical advice easily, and the repairmen are left to their own resources. The owners likewise were in many instances caring for their own cars. It was for these that the school was started.

Requirements for Entrance

The requirements for entrance are definite—the applicant has only to be in the employment of some Maxwell dealer, or to be a Maxwell owner—and to be willing to pay his expenses while taking the course. But he receives no pay while at the factory, nor does it cost him anything outside of his living expenses.

It has been found that by confining the course to essentials, and by giving no more theory than was necessary to an understanding of the principle of each

part, the course could be covered by the average student in 2 weeks. Half of this time is devoted to the electrical system, and half to the mechanical system, each of these being further divided into lectures and actual work.

Laying Out the Studies

The method followed in each case is practically the same. The student first studies the part in question as a whole. Lectures are given showing the fundamental theory, and then the student goes to a car and does the work.

For example, in the study of the Maxwell wiring system, the student first takes notes on the theory of generating and conducting electricity. Blackboard illustrations are used. Then the Maxwell wiring diagram is studied, and the principles of electrical conduction applied to it.

Next the student goes to the actual wiring on a Maxwell car—but the wiring is not in perfect condition. On it have been reproduced all of the troubles that the experts have found possible in their service work. And the mechanic must test the system, find the troubles, and repair them. He is constantly dealing with troubles that have occurred all over the country—and receives in a day, perhaps, more than he might otherwise learn in a lifetime.

The starting motor, the generator, the cutout, are all studied in a similar manner, first separately, and then combined, so that all possible combinations of trouble are experienced. The methods of locating trouble in the storage battery is also studied, but the actual repair of the battery is believed too specialized a trade for a course of this nature. However, arrangements have been made with a battery repair shop whereby students desiring this work can take a special battery repair course.

Instruction Is Thorough

The mechanical part of the car is covered in an exactly similar manner—first a study of the system as a whole, and then the location and repair of actual troubles that have been experienced in the field. The most efficient method of doing the work is emphasized, but the tools used are confined to those found in the average small repair shop.

What the Maxwell Motor Co. is doing for its dealers, salesmen, mechanics and owners, the dealer can do for his employees and owners. Many dealers throughout the country are doing just this thing—holding their own schools and teaching their mechanics to be better mechanics and their owners to be better owners. For service is an essential part of business permanence.

Editorial Observation

The Automotive Dealer

EVERY one of the 6,000,000 farmers in the country is a prospective purchaser of a farm tractor. The tractor must be sold to the farmer, and why should the motor car dealer not do it? Why should he not be an automotive dealer instead of a plain motor car dealer?

Some manufacturers advise their dealers not to take on tractor agencies, but why should this rich plumb slip out of the dealer's hand? There is not a single reason why.

One large Western distributor recently said that he could not handle tractors because it would call for a separate selling organization—not a separate company—and he did not think it could be done. Later he admitted that his business was well enough organized so that he could easily organize a tractor department and place it in charge of an expert.

Why keep out of the tractor business until the tractor is perfected and then try to jump in? Get in now. You may not have a perfect tractor selling organization to-day. The farmer is not perfect as a tractor operator. The manufacturer is not perfect as a tractor manufacturer. The designer is not perfect as a tractor engineer. There is not a single link in the chain that is perfect yet.

Suppose all waited until perfection in their respec-

tive lines arrived. Suppose good engineers kept out till by some accident a perfect design had been evolved. Suppose that farmers stop buying until the perfected tractor has been designed. Suppose that makers delay manufacturing until the eventual job is finished.

No! That never has and never will be the law of evolution. It never has and never will be the law of progress. Get in, and get in quickly. Get in with your whole heart. Learn the job.

Learn tractors and learn farming as related to tractors. Do with the tractor what you have done with the car and the truck. These war days are the days to start.

By to-morrow the other hustler will have the agency that you could have handled perfectly.

Get into the business of selling house lighting outfits. Here again is a market for 6,000,000 outfits, because there is not a farmer living but who wants one, just as every human being born will want a motor car or an airplane, or something else.

The house lighting outfit fits in admirably with your automotive program.

Here, too, are good equipments. They are not all good. But they have already reached a very remarkable degree of perfection.

New Things—New Minds

AND speaking further about the automotive dealer—who is the man who is going to handle cars, trucks, tractors, trailers, farm lighting plants, accessories, tires, gasoline and all the other things related to gasoline power—there is one mighty important point.

It is this: We must all have new minds; we must think new thoughts; we must accept new things and methods, we must get out of the old paths into new ones.

There are dealers to-day—big ones—who stand pat on the assertion that

they are content to handle cars. They have always done so. They propose to continue to do so.

These men are electing to stop behind in the march of progress. The world will go by them. They will see profitable business pass into other hands. They should inspect themselves. They should dig into their own minds and ask themselves serious questions as to what they propose to be doing ten and twenty years from now.

The movement to automotive lines has already started. The leaders in

thought in the trade have seen it coming. They are putting other legs under their businesses. They are becoming well rounded out, financially sound dealers—which means “automotive dealers.”

Don't let old habits, old methods, old thoughts stand in the way. Remember: *These days bring hitherto unthought-of things into our lives each morning, and we must accept what has heretofore been in us unknown. Be flexible of mind. Bread is no longer 100 per cent wheat. Business is no longer 100 per cent cars.*

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

A Nation-Wide Publicity Campaign

Editor Motor World: I am pleased to enclose herewith an article which to my mind is the type of publicity the automobile industry needs at this time.

I believe that our industry is in a healthier condition right now than it has ever been before. It is true there has been considerable curtailment of output. This has been slightly due to the lack of demand on the part of the public; however, in a larger sense, it has been due to the fact that the manufacturers of automobiles are devoting large portions of their plants to the making of material for our Government.

It is true that the manufacturer probably will not receive more than ten per cent net profit on this Government work. However, as it is duplication manufacture, the companies will be able to turn over their capital several times per year instead of only once, as is the case with the automobile business.

There is only one result that can possibly be brought about by this situation, and that is that the automobile manufacturer will come out of the present crisis financially stronger than ever before. Owing to the fact that he has been busy making munitions, there will be a great dearth of cars offered for sale next spring and summer. This means that prices will be higher and the manufacturer and dealer will profit accordingly.

As soon as the war is over, I do not believe there is any other country that will be in a position to manufacture automobiles—to fill the shelves of the world—as well as the United States. This means that the industry will again go forward on a much larger scale than ever before, and will put the automobile manufacturers of this country in the strongest possible position.

To my mind it is not at all improbable that after the war is over the automobile industry will jump from the third largest industry in this country to the first.

The great task we have before us just now, to my mind, is putting the industry back in the right light before the general public, so that the automobile securities will go back to where they belong and the industry will again attain the high position in the minds of the public which it formerly held, and which it deserves in every respect.—Anderson Electric Car Company, F. E. Price, Detroit.

SUGGESTED TYPE OF PUBLICITY ARTICLE FOR NATIONAL PUBLICATION

There is probably no one industry in the United States that has given so freely and willingly of its men, money and general resources, to the need of our country and its allies, in the present great crisis, as has the automobile industry.

It is generally conceded that some of the best mechanical geniuses, as well as business organizers, are actively connected with the automobile business, and it is this high type of American man that has been most needed by our Government in successfully speeding our gigantic national tasks. Many of these men have not waited to be called, but have unqualifiedly offered their services as soon as the need was apparent.

It has been truly stated that the winning of this war was a matter of engineering and mechanical skill to a greater extent than any war in history.

Where could our country have turned for efficient and speedy action, and secured the desired results more quickly, than among the automobile manufacturers—which in a comparatively short period of about twenty years has developed many of the most splendid characters who will go down in history as glorified for the tasks they have accomplished and their unselfish devotion to the work they have shouldered in their country's behalf—in many cases, without any recompense whatever, except their own realization that they were straining every nerve of their mental and physical strength to serve their country?

Who built the tanks that have figured so gloriously in the British victory?

It was the automobile industry.

Who developed one of the most wonderful engines for flying machines the world has ever known?

It was the automobile industry.

Who is it that is building aeroplanes by the thousand which will blind the armies of our foes next spring?

It is the automobile industry.

What industry is it that has voluntarily reduced the manufacture of its regular products to the extent of millions of dollars and turned their factories over to the needs of our Government?

Again the answer is—the automobile industry.

JUST A LITTLE INSTANCE!

Some time ago the War Industries Board at Washington needed a number of unusually keen engineers of experience and ability, to lay out plans and oversee the execution of a multitude of mechanical matters of the utmost importance.

Immediately the Chairman of the War Industries Board called in conference the Automobile War Board—which was sitting in continual session at Washington—laid the matter

before it, and before twenty-four hours had passed, a number of automobile engineers had reported voluntarily for services without pay—whose aggregate salaries represented a fortune and whose aggregate ability was capable of successfully coping with any mechanical problem ever conceived or yet to be conceived.

This is only one instance of many which firmly establish the great importance and loyalty of the automobile industry in handling the problems we must meet quickly and efficiently.

When the horrible war is over and we have again settled down to normal conditions and have singled out our heroes for just worship—as the American people always so nobly do—we shall find many, many automobile men on the roll of honor, and it will always be a matter of just pride to all of us who have done "our bit" during this vexing period, in making the burden of these men as easy to carry as possible, by never missing an opportunity to say an encouraging word for them and the splendid industry they represent—which, as a unit, has so unqualifiedly backed them in their work.

It is indeed to be most seriously regretted that during the past months many untrue rumors have been circulated regarding the stability of the automobile business, which have caused a very false impression as to the present condition of the industry and its future.

This has naturally resulted in big shrinkage in automobile securities, in which the public have become heavy investors, and has caused great hardship and unnecessary panic.

In justice to an industry of such enormous financial strength and public utility as the automobile industry, this matter is now being thoroughly investigated and the unpatriotic offenders who are responsible for the miserable falsehoods circulated, and who have used these falsehoods for their own personal gain, will soon be punished and paraded before the public as the type of undesirable citizen whom we do not want in this country.

The automobile industry should justly be held up before the world as a model of American mechanical engineering skill and business ability and integrity, which could not be shaken even in the most serious crisis.

The United States Government now fully realizes this fact, as is evidenced by the enormous munition contracts and delicate engineering problems it has entrusted to the automobile manufacturers.

The true state of affairs in the automobile industry to-day is that the manufacturers will not be hampered in their work by curtailment of raw materials and supplies, as the United States Government officials are now fully aware of the great utility of the automobile and will do everything reasonable to promote its interests rather than to impair them.

Peoria Show March 13-16

PEORIA, ILL., Feb. 22—War failed to prevent the Peoria automobile dealers from staging their annual exhibition, despite the fact that it put a crimp in it for some time. After considerable discussion they finally decided to stage their annual event, and have selected March 13, 14, 15 and 16 as the dates. The first day's receipts are to be donated to the American Red Cross Society. Walter O. Ireland, who managed the shows of 1916 and 1917, has been selected to manage the 1918 show.

The RETAIL NEWS

PACIFIC COAST

The Federal Tire Sales Co., Tacoma, which was organized by Walter E. Cady, Clarence J. Messenger and C. E. Murray, has opened salesrooms at 953 Market St.

C. E. Thomas, Bellingham, Wash., has purchased the Highway Garage and taken over the Studebaker distribution in Whatcom County.

The Western Truck & Tractor Co., Spokane, has been organized to represent Garford lines in the Spokane district. Temporary quarters have been leased at 1319 W. Second Avenue. After April 1 permanent quarters will be established at Jefferson Street and Sprague Avenue. David Zent is president and manager.

The Rose-Nepple Auto Co., Olympia, Wash., will erect a new concrete and tile building to be used as a shop and warehouse.

H. E. Peterson and A. C. Cartmill, Spokane, will move to their own building at Second and Washington Streets and will add the Harroun car.

The Mercer Cycle Co., Seattle, is installing new machinery in its repair shop.

Seattle Motor Car Co., Seattle, which was organized by J. E. Shaw and A. F. Markham to distribute Elgin and Harroun cars in Seattle and King County, will take over the salesroom and shop of the Pacific Motors Co.

The Hodgins Motor Car Co., Spokane, Haynes distributor, has moved from its salesrooms at First and Lincoln Streets to a new garage on Havermale Island.

Universal Auto Co., Spokane, has moved to a new garage at 175 Second Avenue.

New Garages

Waterville Hardware Co., Waterville, Wash. Young & Wyckoff.....Tacoma
Fred Chandler.....North Yakima, Wash.
Rock Springs Garage.....Spokane

MIDDLE WEST

The American Auto Livery Co., Rhineland, Wis., organized by Harvey Edwin, will distribute Oakland cars in Oneida County.

Hoebel Bros., 313 East Wilson Street, Madison, Wis., have been appointed district dealers in the Crow-Elkhart and will remodel their display rooms in the Madison Saddlery Co. as offices and salesrooms for the new line.

Charles Sterba and Torga Severson, Elroy, Wis., have formed a partnership and will engage in the retail hardware and motor car accessory and supply business.

The T. C. Wood Hardware Co., Rhineland, Wis., has been appointed dealer in the Maxwell truck.

The Overland Motors Co., New Albany, Ind., is remodeling the building at Third and Main Streets as a new showroom. The company will move about April 1.

A. T. Miller, Pontiac, has sold his interest in the Opera House Garage to Ebner E. and Carlton E. Moore of this city. E. D. Moore will take charge of the service department.

The City Garage, Mt. Clemens, has opened under new management, A. Evans now being the proprietor.

The Republic Motor Sales Co. is opening a sales and service station at Adrian, Mich., in

the Union Garage, and will maintain an office, showroom and salesroom. C. C. Lambertson, formerly with the Republic Motor Truck Co., Alma, Mich., will be in charge.

D. J. Kinkelstein, Colorado Springs, Col., owner of The Hub, will close out his Colorado Springs business and move to Philadelphia, where he has organized a wholesale automobile business.

The Thompson Auto Co., Manistee, Mich., will soon occupy new quarters in the National Grocer Co. Bldg., which it is remodeling.

Robert E. Fowler, Sault Ste. Marie, Mich., has opened an oxy-acetylene plant here.

The Arenac County Ford Agency & Garage, Standish, Mich., formerly owned by N. Ireland & Son, has been reorganized as the Ireland Auto Co. Henry W. Pomeroy has purchased an interest and will have the management of the office and garage.

F. A. Wertz and George Wirth, Flint, will open a shop for charging batteries and for metal welding at Lapeer, Mich.

New Garages

Buckeye Motor Co.....East Liverpool, Ohio
S. W. Cashner Motor Co.....Canton, Ohio
Frank Ryals.....Peoria
Waltz Garage.....Waltz, Mich.
Addison Ford & Son.....Dearborn, Mich.
Premier Garage, Inc.....Detroit

NORTHWEST

Dan Nobel, Olds, Iowa, has sold his garage to John Hissong.

The Hast-Hanley Garage, Des Moines, has moved to new quarters at 515-17 East Grand Ave.

J. L. Curtis, New Hampton, Iowa, has become the sole owner of the Reilly and Curtis Auto Garage.

L. J. Botts, Red Oak, Iowa, has sold his garage to C. A. Johnson.

Ford Russell, Greenfield, Iowa, has purchased the interest of his partner in the Russell and Law Auto Supply and Repair Shop.

T. C. Reynolds, Adel, Iowa, has bought the vulcanizing plant of G. W. Cronkwiehte.

C. C. Beck, York, Neb., has bought a half interest in the Day & Night garage.

W. C. Bedford, Chappell, Neb., has bought the Pioneer garage.

William Voss, Hoskins, Neb., has bought the garage of E. Behmer.

A. J. Archer, Haigler, Neb., has sold the Burlington garage to W. B. Marcum and S. H. Lester.

J. R. McCowan, York, Neb., has opened a repairshop.

W. T. Moore, Broken Bow, Neb., has opened a repairshop.

William Miller, Benson, Neb., has bought a half interest in the Wulff Garage.

Prince Auto Co., Omaha, has moved to new quarters at 2054 Farnum street, previously occupied by the Western Motor Car Co.

Noyes-Killy Automobile Co., Omaha, has opened a branch in Kansas City.

Western Motor Car Co., Omaha, has moved from 2054 Farnum street to the opposite side of Auto Row.

Omaha Chandler Co., Omaha, has vacated its quarters at 2520 Farnum street, which will be occupied by the S. & A. Tire Co.

W. S. Johnson, Omaha, has bought the Midwest Motor & Supply Co., Maxwell distributor.

New Garages

John J. Miller.....Isanti, Minn.
E. G. Gates.....Litchfield, Minn.
George Nelson.....Lake Benton, Minn.
Wagner & Faber.....Yankton S. D.
F. M. Murray & Co.....Elliott, Iowa
A. Lewis.....Marshalltown, Iowa
White Way Garage.....Adair, Iowa
B. F. Forbes Sales Co.....Burlington, Iowa
J. L. Crawford.....New Hampton, Iowa
Frank Lozier

622 East Grand Ave., Des Moines
Dayton Pryor.....Stuart, Iowa
L. A. Walch.....Bellevue, Iowa
Tri-State Garage.....Ft. Madison, Iowa
Safety First Garage.....Mt. Ayr, Iowa
Fred Fox.....Corning, Iowa

SOUTHWEST

The Independence Motor Co., Independence, is erecting a new building. It will be two stories high and occupy a 50 ft. lot.

Jack Worawick, Winfield, Kan., has bought the Gordon Garage.

Del Laflin, Clay Center, Kan., recently bought the Kuhlman interest in the Kuhlman & Avery Garage.

Edwards & Standish, Larned, Kan., have dissolved partnership. The firm will be styled Standish Motor Sales Co.

Joe and John Shenk, Rossville, Kan., have sold their garage to Chauncy Summers.

John Harris, Sharon Springs, Kan., has bought the Norton Garage.

L. J. Austin, Great Bend, has added a repairshop to his garage.

Frank Adamson, Medicine Lodge, Kan., has sold his tire repairshop to Fred Stirewalt.

Harry Knight, Holden, Mo., has bought the W. H. Liddle garage.

The Phoenix Automobile Supply Co., St. Louis, has been styled Holthaus Auto & Supply Co. George A. Holthaus is president.

The Leach-Brouster Co., distributor of Owen Magnetic and Bauch & Lang cars in St. Louis, has bought the Sinclair & Horn Electric Auto Garage Co., 4378-80 Olive street and will move its salesroom to that place after remodeling the building.

The Mitchell Automobile Corp. of St. Louis, Mo., will move from the Plaza Hotel Bldg. to a building at 3126 Locust Street. The salesrooms the company are vacating have been selected as the St. Louis branch of the Ben Hur Co. by Wesley A. Stranger, who until two weeks ago was president of the Mitchell Corp.

The Cook Johnston Automobile Co., Little Rock, has changed its style to Cook Automobile Co.

Tenison, Hardy & Grey, Dallas, is now styled Tenison, Bair & Grey Co., E. Bair having bought Hardy's interest in the business.

L. H. Lee, Corsicana, Tex., has moved his salesrooms to the new Cooksey building on East Eleventh Street.

B. L. Coons, Gonzales, Tex., has opened a vulcanizing shop.

Sparman & Green, Pecos, Tex., have opened salesrooms.

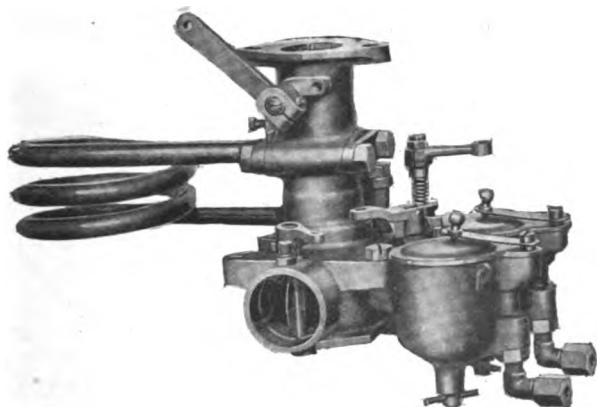
John Lilly, San Angelo, Tex., has bought an interest in the San Angelo Garage from J. H. Girven.

A. E. Freis, Beeville, Tex., has added a vulcanizing plant to his business.

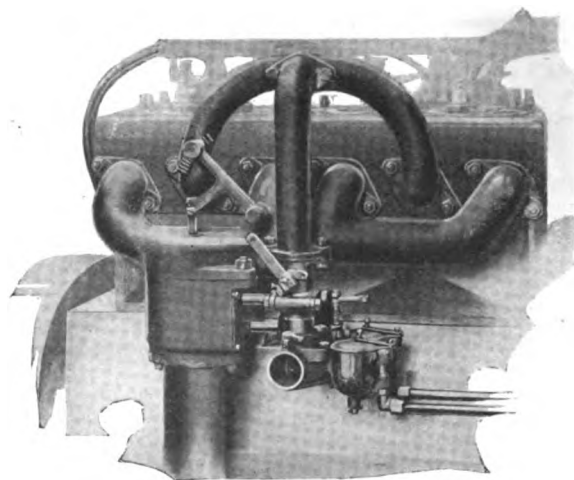
W. H. Hollinger, El Paso, has bought the Richardson Garage.

T. L. Seltzer, Terrell, Tex., has moved his business to East Moore Street.

John Sallaska, Weatherford, Okla., has moved his salesrooms and service station to the building formerly occupied by W. B. Sturgis.



Holley kerosene carburetor complete with vaporizing tube



Typical installation of Holley kerosene carburetor

Holley Kerosene Vaporizer for All Cars

Readily Adaptable to Practically Any Engine

THE Holley Kerosene Carburetor Co., which took over the Holley kerosene carburetor and the Holley vapor manifold for Ford cars from the Holley Bros. Co., is now in production on these two specialties and is placing them on the market. The Holley gasoline carburetor for Fords has been sold, together with the facilities for manufacturing it, to the Ford Motor Co.

The Holley kerosene carburetor, universal type, is an adaptation of the Holley kerosene vaporizer. The present model can be adapted to any type of engine; it is sold to the manufacturer directly and can be installed by making simple changes in the manifold castings to include the heating coil which is a part of the Holley system. The device is designed to use any hydrocarbon fuel with a final boiling point below 600 deg. Fahr. It starts with gasoline and after a short warming-up period the feed is switched to the heavy fuel for running. There are two float chambers to take care of the starting and running fuels.

The principle upon which the device operates is to first provide a primary mixture by means of a needle valve and a very small aspirating jet, which gives a mixture that is too rich for combustion.

This rich mixture of atomized fuel and air is carried through a coil tube of very thin wall thickness exposed to the exhaust gases directly in the exhaust manifold.

The temperature in the tube reaches 500 deg. Fahr. From this coil the rich mixture is led directly to a mixing chamber where additional air enters, diluting the mixture to make it combustible. The opening of the air in the mixing chamber is governed by the suction of the motor and by the opening of the throttle valve.

The application of the unit depends upon the design of the engine. The average gasoline powerplant should have

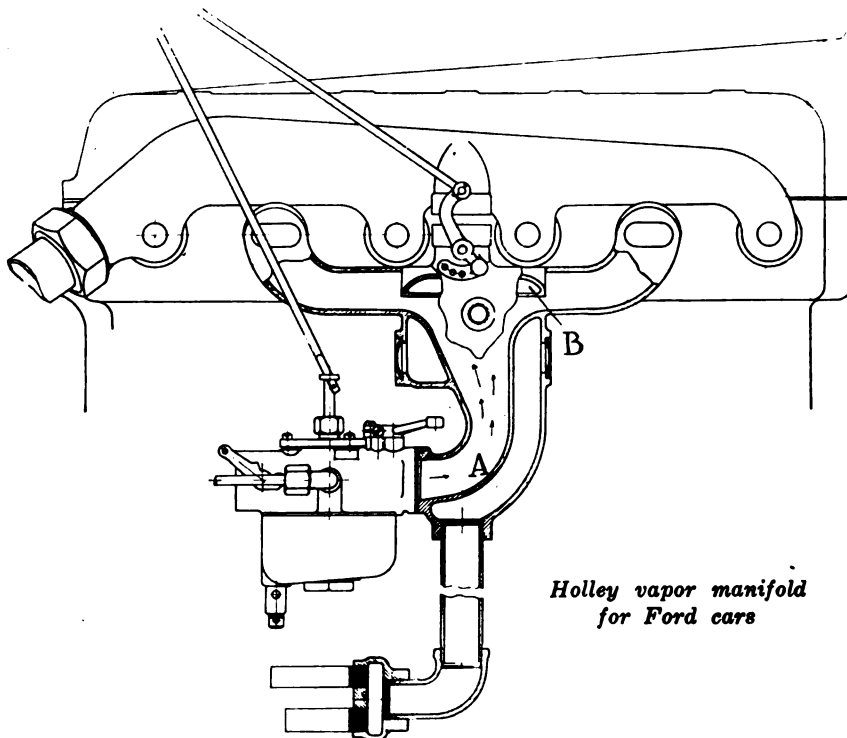
the compression reduced to avoid overheating and consequent pounding, but the amount of the reduction is a matter of experiment and depends on the efficiency of the cooling system.

There are some details that must be taken care of in an installation. A small auxiliary tank must be provided to hold gasoline for starting, while a larger tank should be arranged for the main supply of kerosene fuel. The shifter valve for changing the operation from gasoline to kerosene should be conveniently connected to the dash or control board so that as soon as the motor becomes warm,

an immediate shiftover can be made. A primer located in the manifold, just above the carburetor side aids in cold weather starting.

The sectional view shows a heated manifold adapted for Ford cars. This has been put on the market by the Holley Kerosene Carburetor Co. and is intended to completely vaporize gasoline by applying heat at the proper point. As will be noted from the arrows, the exhaust gases pass down, striking a hot-spot at the top of the internal intake passage. The exhaust gases flow along

(Continued on page 40)



Holley vapor manifold for Ford cars

Accessories

CASSCO TIRE PUMP

A small compact power pump carried under the hood of the car where it is attached by special fittings. The only tools needed are a screw driver and wrench. It has a single cylinder of cast iron fitted with burnished fiber gaskets. The piston is of special aluminum alloy with two spring steel rings. Both intake and outlet valves

length and with $\frac{3}{16}$ to $\frac{1}{2}$ in. eye. It is furnished in plain or weather proof finish and packed in $\frac{1}{4}$ gross boxes. Price 85 cents to \$1.15 per doz.—Cleveland Galvanizing Works, Cleveland, Ohio.

ACCELERATOR FOOT REST

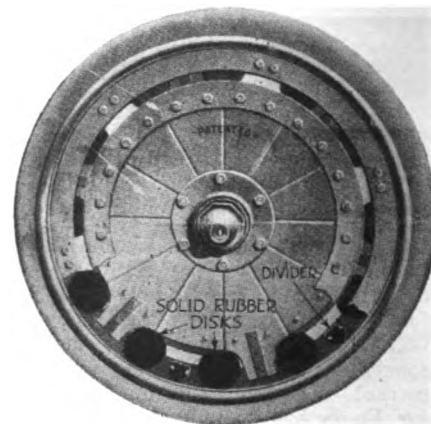
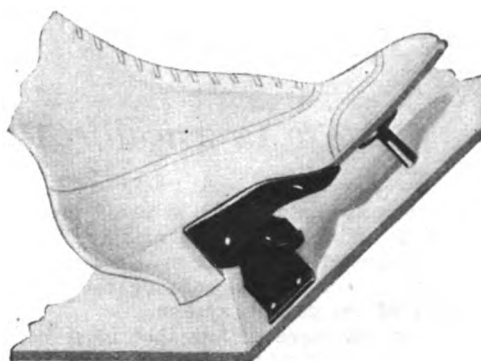
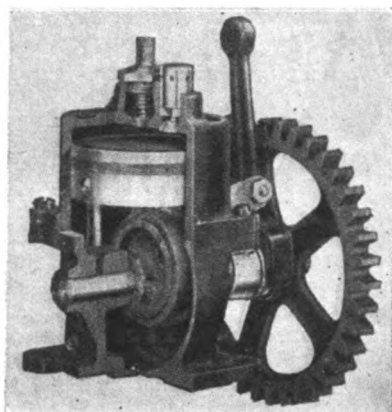
A metal rest shaped to fit the instep and support the foot while affording freedom of ac-

celerating the barrel heads against air pressure. This pressure is applied through the same pipe which admits the oil from the barrel to the tank, the latter being shut off by a stop valve during the air-charging process. A 5-in. indicating dial at the top of the tank operated by a float shows the amount of oil admitted and discharged and is graduated to $\frac{1}{4}$ pt. The truck

twelve widths from $1\frac{1}{4}$ to 4 in. List prices range from 65 cents to \$2.38.—Advance Automobile Accessories Corp., Chicago.

SENDELBACH RESILIENT WHEEL

A truck wheel consisting of two separate parts, rim and center, between which are twelve sets of rubber discs form-



are of poppet type. The gear-shift locks automatically to avoid the possibility of stripping. The pump has a 1-in. stroke and a $2\frac{1}{4}$ -in. bore and displaces 5 cu. in. It is packed ready to install with all fittings, gage, hose, brackets, gears, nuts and bolts, together with a diagram of installation for any type of car. Price \$15; special outfit for Fords, \$10.—Edward A. Cassidy Co., Inc., New York.

tion by means of a hinge connection between the rest and the fixed base. Adapted to all cars. List price \$1.—Onguard Auto Necessities Co., Detroit.

complete with 30 by 7-in. steel tank weighs about 100 lb. Price \$30.—H. M. Boe Co., Minneapolis, Minn.

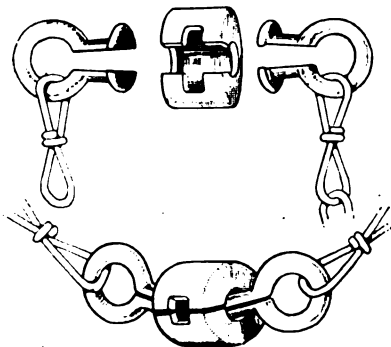
ADVANCE CORK INSERT BRAKE LINING

A brake lining for large cars made on the principle of the well-known transmission linings and fan belts for Fords. Cork discs are inserted in a fabric having a high coefficient of friction.

ing the resilient element and absorbing the impact of road shocks. These are held between the spokes which extend partly into the channel rim and hold the two parts of the wheel in alignment. The tire is solid rubber pressed on. Made in various sizes for trucks of light or heavy capacity.—Rech-Marbaker Co., Philadelphia.

ONE MINUTE SWIVEL REPAIR LINK

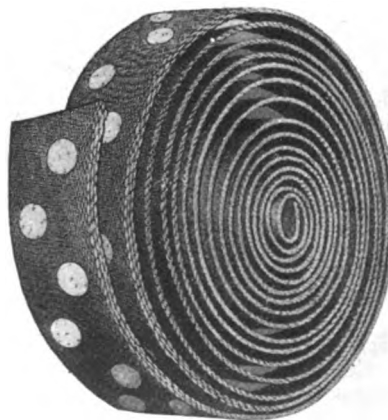
A malleable iron link and swivel combined for repairing or adding to the length of chains. The chain is attached to the eyes, the flanged ends of which



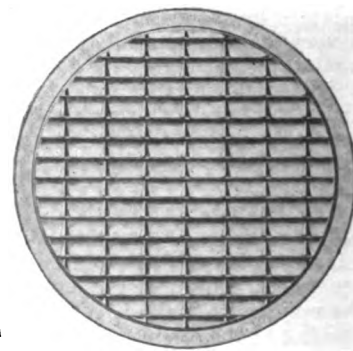
are then clamped in the collar by the stroke of a hammer. A complete link consists of the three pieces shown. Made in three sizes from $1\frac{1}{4}$ to $2\frac{1}{4}$ in. in

BOE AUTOMATIC OIL PUMP

An oil pump and air pressure system attachable to any wood or steel barrel from 25 to 60-gal. capacity. It consists of a self-measuring tank mounted



on an adjustable truck frame. The frame holds the original oil barrel securely by means of tie rods and is provided with top and bottom plates for reinforcement. It is claimed that its high frictional quality does not deteriorate with use and that it is not affected by grease or oil. It is made for all sizes and makes of cars in two thicknesses, $\frac{3}{16}$ and $\frac{1}{4}$ in., and in



SUN RAY LENS

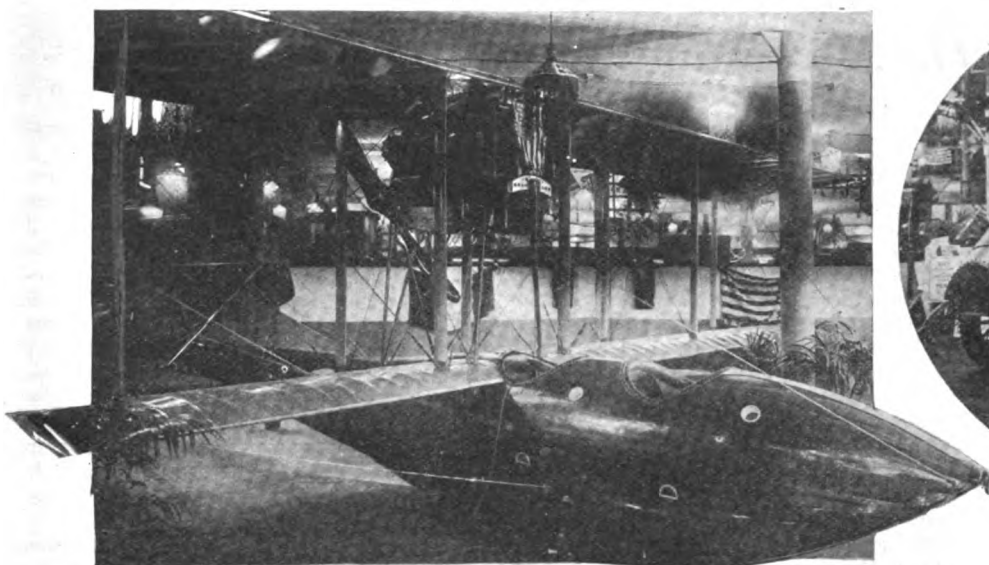
On the inner side of the glass is a series of horizontal prisms which throw the rays of light downward upon the road. A second series of vertical prisms break up the concentrated beams, eliminate glare and

spread the light laterally. It is designed for a side diffusion of 160 degrees. Price, per pair, \$1.75.—Prismolite Co., Columbus, O.

Grand Rapids Drew Crowds with War Exhibits



The show was held in the Kingman building and had all the snap and go of previous affairs. It was one more of the long string of exhibitions that have made business for this industry in 1918



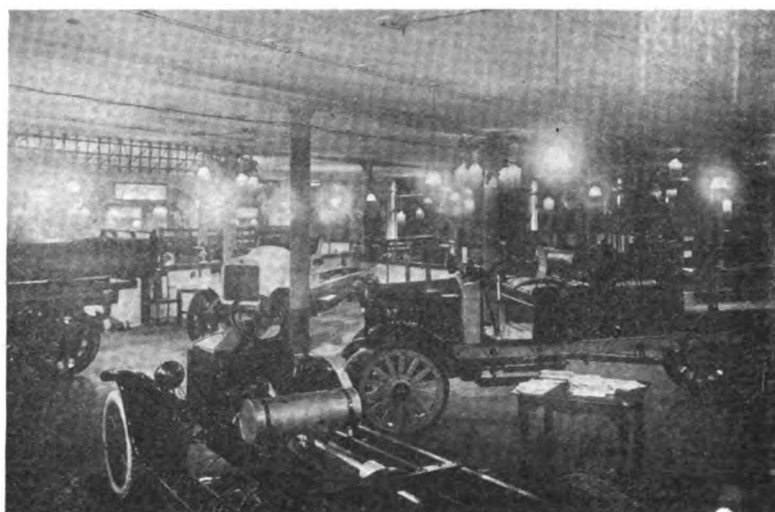
One of the big attractions was an airplane—price, \$12,000—built by the Michigan Aircraft Co. It is 44 feet across



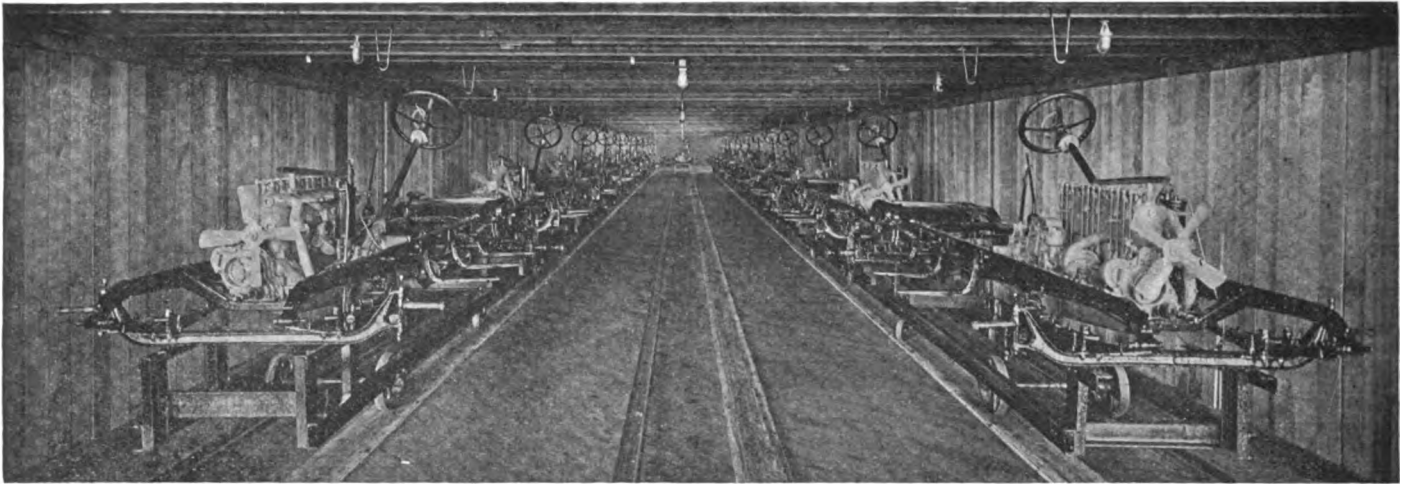
This armored car is on a Reo chassis, and is said to be the same as cars used in France



The Grand Rapids accessory show was one of the most attractive parts of the exposition with its draped back-grounds



There were trucks, too, in the Grand Rapids show. Central Michigan is a good sales field for these vehicles, and great interest was shown



For chassis assembly work, the Pence Automobile Co., Minneapolis, Buick distributor, uses a moving platform where every workman has a certain duty to perform

Pence Couldn't Get Cars *So He Makes Them Himself*

MINNEAPOLIS, Feb. 21—The Pence Automobile Co. is making its own Buick cars. It couldn't get them any other way, and it had to have them. There was no other way to avoid a car shortage, so the manufacture was begun.

From July 1 to Feb. 5 Pence has built 2703 cars in his plant here and has received in completed form from the factory only 450. At the present rate of production this dealer will get his entire allotment during 1918.

Harry Pence and his sales manager conceived the idea when at the Buick factory last April. There were cars to be shipped but nothing except narrow door cars to ship them in. So Pence tore down a few cars and shipped them here for reassembly.

Then, about July 1, he began a more comprehensive work. He had a warehouse building in which he installed machinery bought from the factory and elsewhere. Men were hired and the purchase of parts began. Most of them are bought from the Buick factory, but frames come direct from the frame manufacturer, minus all riveted parts.

Twenty to 30 bodies are received in a car. Shipments are in units of 120 car-assemblies. About 100 men are kept busy. The output runs from 20 to 40 a day. Jan. 11, 40 were built. The plant can turn out 75 a day if necessary.

The company built its own railroad trackage. The whole tuning up cost \$160,000, not including the building.

Because of the lower freight classification there is a saving here but it is evened up by other expenses. The cost of the cars to Pence is about the same.

The cars that bring the parts here are flour cars returning from the East. They are picked up in Michigan, sent here, unloaded in from 3 to 5 hours and

shot over to the Minneapolis flour mills. The loss in time to the cars is not more than two days and a full return trip is assured. The mills even teamed their flour last summer to the Pence yards and avoided shifting of the cars, thus saving valuable time.

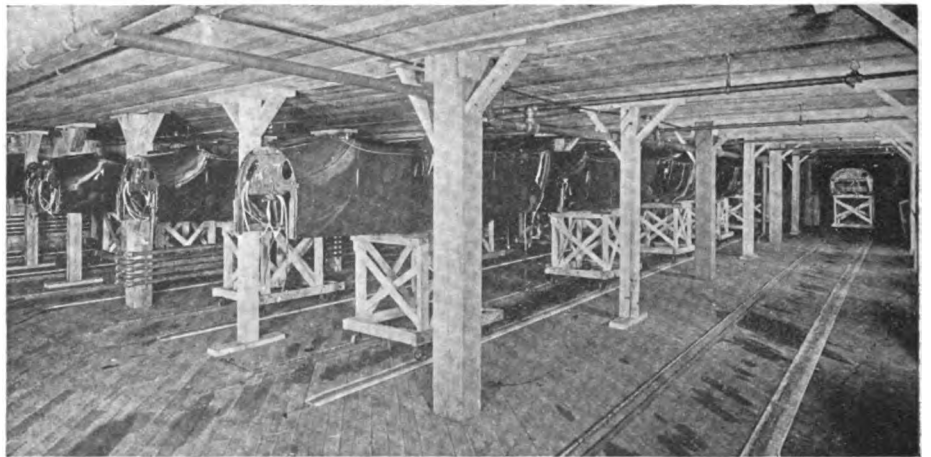
This arrangement will assure cars for the 450 Buick dealers in Minnesota, part of Wisconsin, north of South Dakota, all of Montana and part of Wyoming. Many of them drive their cars away but some ship.

March Re-elected Milwaukee President

MILWAUKEE, Feb. 21—Alton J. March, manager of the Curtis Auto Co., 143 Eighth Street, Milwaukee, was re-elected president of the Milwaukee Auto-

mobile Dealers, Inc., at the annual meeting held in the Hotel Wisconsin.

R. C. Chidester, manager of the Packard branch, was elected vice-president; Jesse A. Smith, distributor of the Hudson and Doble, treasurer; Alfred Reeke, distributor of the Nash, secretary. The directors include Frank J. Edwards, Kissel and Dodge; Edgar F. Sanger, Stearns and Liberty; N. E. Osmond, Chalmers; Herbert W. Bonnell, Mitchell; John G. Wollaeger, Studebaker and Peerless. The association has a membership of forty-five, embracing practically every dealer and distributor in Milwaukee. Bart J. Ruddle, secretary of the National Automobile Dealers' Association, has been assistant secretary and manager of the association practically since its organization.



Factory assembly methods are used by the Pence Automobile Co., Minneapolis, Buick distributor. Since last July, 2800 cars have been assembled

Speed and Low Cost Aims in Gibson's Modern New Home

(Continued from page 21)

and allows perfect freedom in re-winding.

An elaborate wall board system of displaying wrenches is used. One board devoted to open ended and "S" wrenches has space for a half dozen each of 150 different types and sizes of these wrenches. In one section of the sales room are odd lot tables upon which are displayed broken lots of goods.

Possibly one of the most interesting phases of the accessory department is the extensive stock rooms on the third and fourth floors. Here everything is perfect order and neatness. System prevails in every detail of its operation.

The shelving and bin layout is standardized in design and construction. The shelves are on the unit plan with 36-in. square bins open on two sides. These are further subdivided into compartments ranging from 12 x 12 to 18 x 36 in. in dimensions.

The counter ledge instead of being up high has a uniform height of 26 in., making it convenient to stand upon in reaching the top shelves.

The lower section of the shelving is a bin arrangement with its floor extending 4 in. above the building floor line. The purpose of this is to prevent damage to stock from dust and other dirt incident to cleaning and scrubbing the floors.

One section of the third floor stock room is devoted to a private room utilized for the storage of highly valuable stock. This room is under lock and key and is in charge of one man who is held responsible for the safety of the stock. The domestic and foreign shipping departments occupy space in immediate connection with the third floor stock system.

To aid in putting all possible speed in the handling of orders the stockmen are provided with transveyors or elevated hydraulic trucks. These trucks have wooden faced wheels to eliminate noise and prevent dust from the concrete floors. As a further aid in developing speed, electrically operated dumb waiters are used, making it possible to handle small items from floor to floor in the least possible length of time. Three gigantic freight elevators are employed in handling bulky merchandise.

Fitting in with the general scheme of speedy and efficient service is the plan of operating the business. To insure the prompt and accurate handling of mail, the plant contains a compactly arranged mailing room equipped with all modern machines and other labor- and time-saving devices. A special mailing system is used so that letters reach the proper department without loss of time.

For outgoing mail an assembly plan is employed by which duplication or the sending of several pieces of mail to one person or firm in separate envelopes or parcels is prevented. This system is a big item in the saving of postage. All pieces of mail to a single destination go in one container.

In handling orders the company uses the fan-fold system of billing. Seven copies of an order are made at one operation on a billing machine. These orders are then distributed to the proper departments and simultaneous action on each order is obtained without one department having to hold up its operations because of delay in some other department. The accounting department, operated in a section of the general offices, is equipped with modern facilities for the speedy and accurate handling of its work, bookkeeping machines of the latest type being used. A central filing system with an elaborate cabinet arrangement is maintained in the center of the general offices. This is in the hands of skilled filers.

In addition to space devoted to the private offices of department heads, a section has also been provided for a welfare, assembly and conference room where departmental meetings, a feature of the system, are held daily.

The automobile end of the business has its interesting phases which begin in the main retail salesroom on the first floor. Besides the effective decorative treatment of the display room the department has several interesting features, among them the private closing rooms. These are small, cozily furnished rooms into which a salesman takes his prospect to close the order.

Another attractive feature is the salesman's conference or lounging room. Unless a salesman is assigned to the floor he is not permitted in spare moments to linger about the cars in the display room. *He must remain in the conference room.*

The rear section of the first floor is devoted to the quick automobile service station. When a customer drives in an inspector immediately tags his car and assigns it to a stall. When the car is driven out, the owner must present a pass to the doorman. The service office is located immediately inside the main entrance. For the convenience of customers, a shelf or counter extends around and in front of the service office windows, this ledge being ideal as a writing table for signing checks or other papers.

The Gibson Co. has no "used car problem" so, therefore, one-half of the second floor space is devoted to the used car business. It is strictly a business and is given as much attention as is the new car sales department. Strictly serviceable cars of good appearance is the rule, and to carry this out a modern rebuilding and refinishing plant is maintained. The plan has yielded substantial results.

The rear section of the second floor is utilized as a storage and maintenance department for demonstrating cars. This is reached by means of a ramp and the three freight elevators. The ramp idea while not new is a feature contributing

generously in saving time in the handling of cars.

A section of the fourth floor not occupied by the accessory stock is devoted to the Overland parts department. In this section is carried a stock of many thousands of dollars' worth of automobile parts.

The entire fifth floor is utilized as a shop and re-building plant. It is there that heavy overhaul work is done and used cars are rebuilt. This department has modern equipment. One section of the fifth floor space is devoted to a battery charging and rebuilding department. While compact in design, it embodies advanced ideas in the handling of the battery business. The arrangement of stock, parts and equipment, as disclosed in the accompanying illustration, emphasizes this point sufficiently.

The basement space of the building is devoted to storage purposes, mainly automobiles, which are prepared on short notice for delivery to dealers or other customers.

The Gibson Co. is a corporation with \$7,000,000 of available resources, doing a national and international accessory business and having the exclusive distribution of Overland and Willys-Knight cars in eighty-four counties of Indiana and eastern Illinois. Joseph M. Bloch, a member of the board of directors of the National Association of Automobile Accessory Jobbers, is secretary and manager of the company. Other men prominently identified with the automobile trade are connected with the company in official capacities, among them O. R. McDonald, who is at the head of the accessory division.

Scrap Metal Prices

NEW YORK, Feb. 25—Following are scrap metal prices paid by New York dealers during the past week. They are from *Iron Age*:

	Cents per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy.....	17.00 to 17.25
Brass, light.....	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow red brass turnings.....	13.00 to 14.00
No. 1 red brass or composition turnings.....	19.00 to 20.00
Lead, heavy.....	6.50
Lead, tea.....	5.25
Zinc.....	6.00

Lane Heads Parker Rust-Proof

DETROIT, Feb. 23—C. W. Parker, president and founder of the Parker Rust-Proof Co. of America, has resigned but retains his seat on the board of directors. Geo. E. Lane, general manager of the company, has been elected president, and a new board of directors, consisting of eleven men instead of seven, have been chosen which, including the officers, are as follows: Geo. E. Lane, president and general manager; W. M. Cornelius, secretary and treasurer; Jos. G. Johnson, vice-president; Geo. D. Mason, William H. Beamer, Thos. Bromley, Jr., Muskegon; Harry Srere, C. W. Parker, E. J. Corbett, F. M. Beale, Fred A. Aldrich.

Ford Is Increased \$90; Truck Price Unchanged

**Touring, Roadster and Chassis
Advanced Because of Higher
Cost of Materials**

NEW FORD PRICES

Model	Old Price	New Price	Increase
Touring	\$360	\$450	\$90
Roadster	345	435	90
Chassis	325	400	75
Truck chassis...	600	600	—

DETROIT, Feb. 25—The Ford Motor Co. has increased the price of its cars \$90 and its chassis \$75. The price of the truck chassis remains unchanged. The increase is not altogether surprising to dealers, who for some time have been urging early purchases in view of a possible increase. Only last week, however, Frank Klingensmith, treasurer of the Ford company, stated positively that no increase was in contemplation.

Klingensmith ascribes the increase to the rising cost of materials. It is likely that the reduced output of the Ford company also has had an important bearing, the present production being but 1500 cars a day, as against 3000 a short time ago. With the output thus reduced 50 per cent, it is but natural that materials cannot be purchased in such large quantities as with a normal output.

Maccar Truck Prices Increased

SCRANTON, Feb. 26—List prices of Maccar trucks have been advanced as follows:

Model and Capacity	New Price	Old Price
L 1½-ton	\$2,550	\$2,450
H 2½-ton	3,100	2,950
M 3½-ton	3,850	3,600
U 5½-ton	4,750	4,500

Fisk Rubber Earnings Double

CHICOPEE FALLS, MASS., Feb. 25—The Fisk Rubber Co. earned net profits of \$3,578,484.57 in 1917, which is nearly double the \$1,836,829.86 profit in 1916. The surplus on Dec. 31, 1917, amounted to \$4,005,392.97. Assets of the company, including \$284,622 of investments which the company has made, amount to \$41,986,768.85. The net profits last year equaled \$42 a share on the \$8,000,000 common stock outstanding.

What Drive-Aways Cost

WASHINGTON, Feb. 25—Dealers in Washington have discovered the following figures to represent the cost of drive-aways from Detroit to Washington. Drive-aways have been resorted to to an important extent because of the railroad situation. An Oakland car driven from Pontiac to Washington, 600 miles, requiring 5 days, cost \$70. A number of Hupmobiles recently driven here from Detroit in 6 days averaged \$85 per car, the high cost due in great part to time lost in snowdrifts. A number of Federal trucks made the trip from Detroit in 12

days with a cost of \$130 per truck. The Packard company and the Saxon companies have also made a number of drive-aways from Detroit to Washington, but their cost figures are not available. The route followed from Detroit is via Toledo, Cleveland, Pittsburgh, Gettysburg to Washington.

Used-Car Show for St. Louis

ST. LOUIS, Feb. 25—A used-car show will be held in the Exhibit Building, where the annual automobile show was held last week, beginning March 18. The permanent features of the decorations will remain for the used-car show. The decision to hold the used-car show was reached at a meeting of the St. Louis Automobile Manufacturers' and Dealers' Association after the show closed on Friday night. President Schlecht named the following committee: R. C. Frampton, of the Hudson Phillips Motor Co., chairman; Ed Weber, of the Weber Motor Car Co.; Phil H. Brockman, of the De Luke Automobile Co.; G. W. D. Donnelly, of the Supreme Motor Co.; P. S. Anderson, of the Packard-Missouri Motor Co. The committee selected Capt. Robert E. Lee, who was manager of the show just closed, as manager. On Saturday 24 dealers signed space applications.

Maxwell Changes Coast Distributer

LOS ANGELES, Feb. 25—The Southwest Motors has been appointed southern California Maxwell distributor. The move has occasioned considerable surprise among dealers. Up to the present time Maxwell has been handled by the Lord Motor Car Co., which has had the line for the past 5 years. The Southwest Motors was organized less than a year ago and is occupying part of the building erected for Harold L. Arnold.

Airplanes at York Show

YORK, PA., Feb. 23—The Third annual show of the York County Automobile Dealers' Association, which had been arranged for the last week in January, but was abandoned because of the acute fuel situation in this city, will be held during the week April 1-6 in the South Queen Street Tabernacle. It is planned to have on display two aeroplanes, similar to those being used by the allies in their raids over the German trenches.

Harroun Producing 30 a Day

WAYNE, MICH., Feb. 20—The production of the Harroun Motors Corp. is now up to 30 per day, and is being maintained in spite of the fact that a large contract calling for several million 155 millimeter shells has been taken by the company. It is probable also assembly work on the Class AA truck will be undertaken at the Harroun plant, but this will not interfere with the production, which is expected to increase rather than decrease.

Drive-Aways Supply Windy City Dealers

**Truck Fleet Starts East and Roads
West Are Carrying Hundreds
of Passenger Cars**

CHICAGO, Feb. 25—Chicago's first drive-away to an eastern point commences to-morrow when 30 Master trucks leave over the Lincoln Highway for Pittsburgh, Pa. It is expected that 18 more trucks will leave for the same destination in two weeks.

Among local dealers the Buick branch expects that 130 cars will arrive from Flint to-night. This company is receiving on the average about 100 cars per day and expects to better this figure within the next 10 days.

The recent warm weather has not affected the roads, which still remain solid and in good shape for rapid traveling. The Overland branch is driving about 20 cars per day through from Toledo and is planning on exceeding this figure in the very near future. This company is using Chicago as a distributing center for points west, the cars being driven in from the factory and then shipped west by railroad. The Dodge distributor has three crews bringing the cars from Detroit and is averaging about 45 cars per week. Each of the Dodge crews is handling about 15 cars per trip.

The northern route is being used, as it is considerably shorter than the other, and as the roads have been found to be in good condition, it means a considerable saving of time.

Reo has chartered two express cars and these are making round trips between Lansing and Chicago, hauling 10 cars per trip. The vehicles are shipped knocked down, as by this means five cars can be loaded in one express car.

It is also noted that many dealers in the middle West have ceased to rely upon the railroads and have adopted the drive-away method. Many of the convoys have been seen recently bound for points in Iowa and Nebraska.

Want Box Cars for Tractors

MINNEAPOLIS, Feb. 23—Tractor manufacturers as well as all dealers in farm implements are interested in a plan to get the government to permit such merchandise to be shipped out in box cars, which are now allowed use only for carrying grain. At least 50 per cent of the implements will have to go out before April 15 to be available. The total amount of such machinery to be sent out from here is \$60,000,000. The Twin City Implement Dealers' Association through the railroad management, Director McAdoo and the National Implement Manufacturers' Association at Chicago urged that box cars going out to the country for grain carry such implements. Stocks are low because of the high prices last year. Twelve thousand cattle cars employed for this use last year have never been returned from the South where they were sent.

175,000 Trained Men Ready by October 1

Forty-two Institutions Will Carry on Work of Technically Train- ing Men for the Army

WASHINGTON, D. C., Feb. 22—One hundred and seventy-five thousand newly trained mechanics and technical men will be ready to answer roll call by Oct. 1 for occupations required by the United States Army.

This estimate is the result of questionnaires mailed and personal visits to 143 colleges, trade schools and allied institutions throughout the country, which work was performed by the Federal board for vocational education.

Forty-two institutions have signified their willingness to begin work at once and 17 stated they will be able to give instruction by May 1. The plan is to take drafted men of the first class who have signified their willingness and give them intensive training.

The program of the Federal Board which was created prior to the war to enlarge educational facilities for students of mechanics, industry and agriculture, calls for the complete diversion of the available institutions of the country to war vocational training, the board acting for the newly created war education committee of the War Department which was recently formed as told in a past issue.

Schools to Train Men

The schools are expected to train men with various assets of knowledge and experience to do the work demanded in various army occupations in courses of two months' duration. It is not expected at the outset that novices can be made into experts in this length of time.

The Federal Board now has a number of representatives traveling through the country investigating both public and private schools, including those taking in all automotive trades and industries. These representatives analyze a school and if found satisfactory they place it on an approved list to come before the notice of the War Education Committee.

A course of instruction is expected to accomplish one of the following four results with the individual:

1. Make a semi-skilled mechanic such as a drill press hand or second class lathe operator from a novice.
2. A good technician, as for instance a chauffeur from a novice.
3. An expert in some special line of work from a skilled or semi-skilled journeyman, as for instance a wood specialist on airplanes from a cabinet maker, or an ignition repairman from a garage mechanic.
4. A fairly skilled mechanic from a semi-skilled worker, as for instance a fairly good blacksmith from a blacksmith's helper. The schools are being asked to train men in the following and other lines: Airplane mechanics, auto repairmen, chauffeurs, draftsmen, gas engine repairmen, ignition repairmen, motorcycle repairmen, sheet metal workers, wood workers and welders.

A tentative schedule has been arranged for 70,000 mechanics as follows:

Begin training with 10,000 men March 15.
Increase to 20,000 men April 1.
Discharge 20,000 men May 30.
Take on 25,000 men June 1.
Discharge 25,000 men July 30.
Take on 25,000 men August 1.
Discharge 25,000 men Sept. 30.

It is planned to divide these men into eighty squadrons of 125 men to a squadron, and each squadron of future soldiers will be taught 21 trades in all.

Tractor Engineers Do Not Favor Liberty Tractor

KANSAS CITY, Feb. 23—The 200 who attended the second tractor dinner of the Society of Automotive Engineers at Hotel Baltimore, last week, heard the rumored Liberty tractor generally berated by the entire tractor industry. The Liberty tractor had not a friend present.

A. P. Yerkes of the Department of Agriculture, Washington, D. C., read extracts showing that Washington was opposed to it and that there was not the slightest sentiment there in favor of it. J. B. Bartholomew, president of the Avery company, led the crusade against it, declaring that the rumors already spread were holding up tractor sales, in that farmers were thinking some form of government standardized tractor was coming out and were not going to buy until they had seen it.

Much injury can come to the tractor industry at present by continued circulation of such rumors. The necessity to-day is for tractors such as are being built. There is too great a scarcity of engineers, tool makers, and draftsmen to go into the development of a Liberty tractor. If a Liberty tractor were to be developed by the government the matter should be kept secret, not only until after it was designed, but until it was tested out and found satisfactory and ready to go into production. Otherwise a stopping of tractor sales will ensue.

Cash for Another Dealer

DENVER, Feb. 23—Beginning March 1 the Cadillac Motor Co. will conduct its business on a cash basis. In a letter outlining the change, R. R. Hall, manager, states that the extension of credit has required the investment of \$25,000 capital, which will not be necessary under a cash basis. The company will use coupon books, and all replacements, guarantees, and other accepted claims will be paid in cash.

Converse Alternates Its Depressions

MALDEN, MASS., Feb. 23—The Converse Rubber Shoe Co. has rearranged the Clover depressions in its non-skid tires so that they are now alternate instead of opposite and somewhat closer together. The change has increased the non-skid properties of the tire and provided for more even distribution of tread wear. Otherwise the construction of the tires is the same.

Buying Mood Precedes Boston Show Opening

Despite Bad Weather Sales Are Picking Up—Prosperity Invades New England

BOSTON, Feb. 25—Boston's annual show is to open next Saturday. The dealers are glad now that they did not postpone the show until later in March, as some of them proposed when the Monday closing order went into effect.

For the past two weeks there has been an awakening in buying which has been a big surprise to the dealers. Ordinarily sales are quiet during the holiday season, then they are intermittent in January or February. Not until the show and afterward do they begin to show much real life. Last December they slowed down to almost nothing. January was very quiet, and the first two weeks of February were no better. So the dealers were grouchy.

Then suddenly sales began to pick up. First it was used cars. Then new cars were ordered. Washington's Birthday came along, the usual open-house day. It was cold, but visitors began to put in an appearance at the salesrooms. And in the afternoon there were respectable crowds in a lot of places. There were not so many as a year ago, but there were more buyers. So the grouches have given way to smiles and the men are now anxious to get going at the show.

The run of sales at present is what generally follows the show in the spring. Apparently the people have decided that the stories in the papers that there will be a shortage of cars is true, and they intend to get theirs now.

The best evidence of prosperity is found in the piano sales. The piano factories in Boston are very busy, and many people who never owned one of the instruments are buying not alone pianos but victrolas, too. This is due to the fact that in many cases several people in a family are working for good wages, so they have money now. And from this class will come the new crop of motor buyers.

Chester I. Campbell took possession of Mechanics Building this morning and turned loose a big force of carpenters to start getting the place in shape. There will be no overflow show in Horticultural Hall this year. One was planned, and there were enough exhibitors for it, but the scheme was abandoned. The salon at the Copley Plaza, which was run a year ago in connection with the show, was also abandoned this year. There were enough dealers who would have taken space, but it entailed so much work keeping in touch with it that the greater number of the dealers thought it best to stick to Mechanics Building and devote all their energy to the big show.

There will be a big truck show section this year, more so than usual, because a number of the passenger car dealers have added commercial vehicles to their lines.

And as the Motor and Accessory Manufacturers' Association has sanctioned the show, the accessory line will be bigger than ever. Therefore Boston will have a larger show than ever despite the war conditions. And as the territory is so compact and it is so easy to get to the city, all the New England dealers will flock to the Hub. Likewise the big wholesale houses will put on their special sales to attract customers who like to do two things at once, see the motor show and do their spring buying. That is why the show will be a big success again this year.

Bureau County Organizes

CHICAGO, Feb. 23—The garage owners and car dealers of Bureau County met at the Clark Hotel, Princeton, Ill., Feb. 19, and formed a local association. Harry Snell of Princeton was elected president; Henry Knauf of Ladd was elected vice-president, and L. H. Anderson of Buda was elected secretary-treasurer. Bureau County has only 28 garage owners and dealers, 18 of whom were present and joined the association.

A resolution was offered that the association go on a cash basis. Another resolution was also offered that they standardize the prices of repair work, etc., done by the garagemen. These resolutions were ordered to be printed and mailed to each member. The next meeting was called for Monday, Feb. 25, at which time they will discuss these resolutions and action will be taken thereon.

The local association affiliated with the Garage Owners and Automobile Dealers' Association of Illinois as a local body. They were assisted in perfecting their organization by the former secretary of the state association, E. J. McGuirk, who represented Secretary-Treasurer H. E. Halbert, and Chas. L. Turner, the president, also attended the meeting.

The dealers and garage owners of La Salle County will hold a meeting at La Salle, Ill., Thursday, Feb. 28, to form a local association of La Salle County, also to complete final arrangements for the local show.

Matt Knauf of Peru and Mr. Kinder of La Salle are acting as the committee to perfect this organization.

The members of the new Bureau County Association are:

Ward Garage, Princeton; J. C. Burchell, Walnut; Knauf Garage, Ladd; Neponset Garage, Neponset; Warnok & Davis, Spring Valley; G. H. Grisell & Son, Lamotte; Kasbeers Garage, Princeton; E. A. Kizer, Princeton; Goldens Garage, Walnut; Anderson Auto Co., Princeton; Harry Snell, Princeton; G. B. Brown, Princeton; F. C. Bolman, Princeton; Smith Garage, Spring Valley; J. W. Steinnie, Tiskilwa; Buda Auto Co., Buda; Stiver & Co., Walnut; Nickelson-Molline Tire Shop, Princeton.

Auto Tire Now Wholesale Only

SAN DIEGO, CAL., Feb. 23—The Auto Tire Co. has sold its retail business, good will and name to Messrs. Unger & Guy and will discontinue its retail trade entirely. The wholesale trade will be continued under the style Motor Hardware & Equipment Co.

New England Dealers to Meet Next Monday

E. LeRoy Pelletier to Give Message of Business Optimism at Territorial Gathering

BOSTON, Feb. 26—The dealers of New England will hold a business rally luncheon Monday noon of the Boston show. They will be addressed by E. LeRoy Pelletier, a nationally known advertising man, who has addressed several meetings this winter.

Pelletier has data to show why dealers should go after business and why people should buy motor cars. His talk has been enthusiastically received in several cities. He spoke last week in St. Louis.

Nelson Adds Jumbo Truck

SAGINAW, MICH., Feb. 23—Nelson Brothers Co. of this city has just formed a separate organization known as the Nelson Motor Truck Co. and has begun the manufacture of a 2½-ton internal gear-driven truck. It is the intention of the concern to add other sizes to the line as rapidly as possible. The new vehicle is known as the Jumbo.

Several Companies Get Trailer Orders

DETROIT, Feb. 23—The Columbia Motors Company has secured a government contract to make 500 two-wheel, one-ton trailers. It is expected to have half of the order delivered early in March and the complete order on the way by April. The factory is preparing plans to readjust the factory forces that would permit the building of the trailers without undue interference with the manufacture of passenger cars. Simultaneously with the receipt of this Columbia order the Dort Motor Car Co. was asked to build 1500 trailers, the Ohio Trailer 1000, and the Miami Trailer and Rogers Trailer each a total of 500. This makes an aggregate total of 3500 trailers.

Hayes Wheel Earns \$767,351

JACKSON, MICH., Feb. 21—The Hayes Wheel Co. profits for the year ending Dec. 31 were \$767,351. The company's sales aggregated \$8,674,370.62 and the manufacturing cost was \$7,907,018.66. After making discounts on purchases from which cash discounts on sales and minor losses were charged, a gross income of \$788,012.35 was left. Deductions of interest brought the net income to \$750,685.31 before making provision for federal income and excess profits taxes. After setting apart \$270,000 as reserve for federal income and excess profits taxes and distributing \$165,000 in dividends, a balance of \$315,685.31 was carried to surplus, increasing accumulated surplus to \$754,083.40, which after various adjustments, including writing off \$76,652.71 on patent rights and good will and appropriating

\$38,411.49 to cover the unamortized portion of discount, Jan. 1, 1917, on the company's outstanding 5 per cent gold notes, was reduced to \$641,340.01 total surplus at the end of the year.

King Rearranges Personnel

DETROIT, Feb. 23—William B. Nesbitt of New York City has been elected vice-president of the King Motor Car Co., following the resignation of T. E. A. Barthel.

J. Ben Siegfried has been promoted from assistant general manager to general manager. He was production manager of the company at one time.

Bid on Mail Airplanes

WASHINGTON, D. C., Feb. 22—Three bids have been received to-day for building the five airplanes for the Post Office New York to Washington aerial service. These were received from the United Eastern Airplane Co., \$59,000, delivery in 30 days; Standard Aero Corp., \$68,000, delivery in 63 days; West Virginia Aircraft Co., \$72,500, delivery in 90 days. Second Assistant Postmaster-General Otto Praeger yesterday left for a trip through Philadelphia and New York for inspection of landing sites for the airplanes.

Ban Higher Pay for Aviators

WASHINGTON, D. C., Feb. 22—Following the recent request of Secretary of War Newton D. Baker, Secretary of the Navy Josephus Daniels has recommended to Congress that extra pay and allowances for members of the Navy Flying Corps be abolished. Secretary Daniels advances the argument that the granting of such extra pay is no longer necessary, since flying has progressed to such an extent that it is no longer extra hazard in time of war, and he states the granting of such extra pay is unfair and unjust to other officers and enlisted men operating in service more hazardous.

Briscoe Prices Advance

JACKSON, MICH., Feb. 26—Prices of the Briscoe 4-passenger touring car, roadster and open delivery car will be advanced from \$725 to \$825 March 1.

Harroun Assets Top \$11,000,000

WAYNE, MICH., Feb. 21—The Harroun Motors Corp. reports gross assets of \$11,186,768.26 for the year ending Dec. 31. These are divided into capital assets, consisting of land and buildings, machinery and equipment, tools, dies, etc., of \$1,348,295.13; patents, models and goodwill, \$7,006,887.01; treasury stock, \$2,155,930. Current assets, including inventory, are \$277,286.09; cash on hand, \$157,068.10, and together with accounts, notes and investments total \$660,263.45. Prepayments, covering advance insurance, travelers' expenses and advances on ordnance contracts are \$15,392.67. Liabilities include capital stock, \$10,000,000; deferred liabilities, \$784,462.40, with current liabilities of \$395,375.86.

Finding and Curing Electrical Troubles

Ambu Equipment Indicates All Faults and Gives Specific Instructions for Their Repair

ELECTRIC lighting, starting and ignition equipment on modern motor cars has always been more or less mysterious to the average garageman and repairman. The trouble has been due to a lack of understanding of the electrical principles involved and to a lack of knowledge of the proper sequence of investigations to pursue in order to properly diagnose troubles.

It was with these thoughts in mind that the Ambu service was developed. With this equipment any person of average intelligence can accurately diagnose all electrical troubles, and, through carefully compiled instructions, proceed in the proper manner to cure such troubles.

The system consists of an electrical instrument which is somewhat more than a combined ammeter and voltmeter, though it may be used as either alone. In addition, there are wiring diagrams and individual instructions covering the diagnosis and repair of trouble on twenty-eight different electric systems which are used on practically every car on the market.

All Systems Covered

These instructions and wiring diagrams are contained in fourteen convenient booklets, properly indexed, so that the location of any particular data is instantly ascertainable.

The construction and use of the Ambu instrument is the unique part of the equipment, for this instrument, used according to instructions, becomes virtually a second set of brains for the garageman.

In its simplest aspect the instrument is a combined voltmeter and ammeter. In testing for any certain trouble, the instrument is connected, say, for example, in series between the battery and the generator with the system to be tested.

For example: For an Autolite system on a 1917 Model 75 Overland car specific instructions are given as to the exact manner of connecting the instrument for a given trouble. Similar instructions are given for connecting the instrument to any other system on any other car for any and all troubles.

Assuming that the instrument has been properly connected to the Autolite system on a 1917 Model 75 Overland, for example, a guide in the booklet devoted to Autolite charts is consulted; this guide gives a series of key numbers which are the indices to the various troubles and repairs listed in that part of the book devoted to Autolite systems on the Overland car.

The lever C of the instrument is moved so that the zero line on the volt



This is the Ambu instrument which may be used separately as either an ammeter or a voltmeter. In combination with a series of booklets and charts it is used for finding any trouble in lighting, starting and ignition systems on all kinds of cars

and ampere scale is under the pointer. The lever A is then moved so that the upper key number as given in the guide, which in this case is 8, appears in the upper of the two openings marked *key number*. The lever B is then moved so that the lower key number as given in the guide, which is 4, shows in the lower of these two openings.

Simple Tests to Make

With the engine not running and the lamps switched off, there should be no flow of current, and if the system is in proper condition and there is no leakage an N appears in the lower window marked "Engine Not Running, Lamps Off," showing a normal reading.

If, however, the pointer had moved, this would indicate a leakage of current somewhere. The procedure then is to move lever C, bringing the needle again over the zero reading. This will cause a number to appear in the window under "Engine Not Running, Lamps Off." This number is the index to the trouble and also to the method to follow in curing that trouble.

For example, suppose a 1 were to appear in this window. According to the Autolite chart this shows a number of causes as follows:

- A—Cut-out closed.
- B—Starting switch closed, short-circuited or grounded.
- C—Shorts or grounds in accessory or extra lamp lines.
- D—Lighting switch closed, short-circuited or grounded.
- E—Incorrect wiring.
- F—Shorts or grounds in wiring.

If the instructions went no further than to indicate the particular trouble, the value of the instrument would still be very great to the garageman or repairman not familiar with electrical equipment. But it goes much further. In addition to giving this information, it also indicates very clearly under each particular trouble the exact method of procedure to cure that trouble.

For example, under the heading A—Closed Cut-out—the following instructions are given:

"Remove the wire from the positive or right-hand dynamo terminal. If this

removal causes the 1 to disappear, the trouble is in the cut-out. The cut-out may be taken out of the dynamo by removing the brush coverings, taking the wires off the brush connections, taking out the screws in the end plate that carries the dynamo terminals and carefully drawing the cut-out from under the magnets while the brush wires come with the instrument. When removing the cut-out it will be well to make sure that the space between the dynamo terminals is clean and free from matter that might cause a short circuit.

"If the trouble is in the cut-out look for the following:

"(a) Dirty or pitted contacts.

"(b) Coil spring loose, broken or disconnected.

"(c) Spring tension too light because of loose adjusting screw.

"(d) Bent or sticking contact blades."

This is but one example showing the operation of the instrument in service, and is some indication of the extremely careful manner in which every possible trouble in every existing system has been diagnosed and instructions for its cure put into such language that any one can understand.

In addition to diagnosing and indicating cures for trouble, the charts also include complete wiring diagrams of every system on the market for all cars from 1913 to date. There are also tabulations showing the proper size of lamps to use and the type of socket; other data tell the exact amount of current the generator should produce at various car speeds, the speed at which the cut-out should operate to make or break the circuit, etc.

Three simple operations are required

to make a complete test of the electrical system on any car. These are:

Test 1, which has been described and which is for the engine idle and the lamps turned off;

Test 2, which is for the engine idle with the lamps turned on; and

Test 3, which is for the engine running at a given speed and with the lamps turned off.

The three tests can be made in a very short time and no matter what the trouble in the system may be, if trouble of any kind exists, this will be indicated infallibly by the instrument with the aid of the various charts.

In the event that the generator is not producing the proper amount of current, or is perhaps producing too much, this can be detected at once by using the Ambu instrument either as a voltmeter or as an ammeter direct connected to the generator.

Similarly, the instrument can be used as a voltmeter alone, in order to test a complete battery or its individual cells for equality. Any description of the equipment must necessarily make it appear that the instrument and charts are somewhat complicated. On the contrary, however, they are extremely simple and require only the ordinary degree of common sense for proper results to be obtained. It should be only a matter of a very short time before a person using the instrument becomes familiar with the meaning of the various figures which appear in the little windows on the diagrams.

For example, eliminating the *N*, which indicates a normal condition, there are only four figures which can appear at any of the windows marked *Engine Not Running Lamps Off*, or *Engine Running*

Lamps On. These are "Too Much Charge" on one side and "Too Much Discharge" on the other; "Not Enough Charge" on one side, and "Not Enough Discharge" on the other; "No Charge" on one side, "No Discharge" on the other; "Reversed Wiring" on one side, "Ambu Cables Reversed" on the other.

In the window marked *Engine Not Running Lamps Off* there can be only two readings, eliminating the *N*, which is Normal. These are 1, which means a leak of current somewhere; and 2, which can only mean that the Ambu cables are reversed. From this it can be seen that these 10 figures may easily be memorized in a short time.

The key numbers over the volt and ampere scale refer to individual troubles and cures which are listed in the various individual books covering different systems and cars.

Each book of charts consists of three divisions, as follows:

1—Twelve charts, the first ten of which are designated by one of the key numbers that may be indicated by the Ambu instrument during the test made on that car.

2—Detailed description of the construction, operation, care, repair and adjustment of the various types of the make of equipment treated in each chart.

3—A list of cars using the make of equipment being treated together with the voltage, candlepower, lamp base, type and number of lamps used on each car.

The complete equipment is packed in a substantial case and sold for \$122.50. It is made by the American Bureau of Engineering, Chicago.

Holley Kerosene Vaporizer For All Cars

(Continued from page 31)

this intake passage and finally pass out at the bottom. The heavy particles of fuel, after leaving the carbureter, strike against the wall at the point *A* and there are broken up by the heat from the exhaust gases. Should any of the particles not be broken up at this point they will be vaporized when they strike the hot-spot at *B*, as this is directly in contact with the exhaust gases close to the cylinder.

It will be noted that the heavy globules are subjected to a rising temperature, starting at the point *A* with a lesser degree of heat and finishing at *B* with a maximum. A control valve is fitted, regulating the amount of heat passing the intake manifold.

How to Install the Manifold

Disconnect exhaust pipe, gasoline pipe, strangling throttle wire and adjusting needle rod.

Loosen clamp nuts and remove both manifolds with carbureter and pre-heater.

Remove carbureter from regular Ford

intake manifold, and attach to special Holley manifold, using same gaskets and special long bolts furnished for this purpose.

Connect Holley inlet and exhaust manifolds by the short piece of tubing furnished.

Cut hole 1½ in. in diameter in mud pan between cylinder and frame.

Install assembly of Holley manifolds and carbureter, being sure to get gaskets in place at all six ports.

Connect exhaust pipe, gasoline pipe and strangling throttle wire, as before.

Install outlet fittings on lower end of manifold below mud pan.

Drill ¼ in. diameter hole in dash, elongating it vertically to ½ in. and locating 1½ in. to right of carbureter adjusting rod hole and at the same height.

Insert heat shunt valve control rod through hole in dash plate, and connect to valve lever.

Northwest Tractor Association Formed

MINNEAPOLIS, Feb. 21—The Northwest Tractor Trade Association was formed with 36 charter members at a meeting in the Hotel Radisson Gold Room attended by 80 persons. Dues were put at \$50 a year, payable semi-annually, and the organization started after adop-

tion of by-laws with a list of officers as follows: President, D. J. Murphy; vice-presidents, N. B. Nelson and J. M. Orton; secretary, W. B. Gleason, and treasurer, P. J. Perry; directors, H. W. Brown, H. D. Dodge, P. J. Keating, W. R. Stephens, E. K. Jenkins.

The purpose of the organization, stated by Temporary Chairman W. B. Gleason, is to bring the manufacturers and distributors of tractors and power machinery into co-operation for furthering of the industry. Eligible for membership are all manufacturers of gas, oil and steam tractors and plows and accessories, distributors and factory branch managers. The only paid official will be an assistant secretary.

Coast Branch for Republic

ALMA, MICH., Feb. 21—The Republic Motor Truck Co. has purchased a modern steel structure located in the 3-mile circle in the city of Los Angeles, including 12½ acres of ground. This is to be used as a branch factory supplying a large part of the dealers in the south and west and also intending to do considerable foreign business which the company has in Japan, China, Hawaiian Islands, the Philippines, Mexico and South American countries.

General Motors Takes Chevrolet as Division

Will Operate Like Other Divisions
—Will Continue Making Cars—The Plan

NEW YORK, Feb. 23—The Chevrolet Motor Co. is soon to pass out of existence as an independent automobile producing company. Under the terms of a recommendation submitted at the annual meeting of the General Motors Corp., and soon to be ratified, it will become a division of the General Motors Co. and its status will be the same as that of other General Motors divisions such as Buick, Cadillac, Oakland, Oldsmobile and the other large parts making concerns. Like these companies it will go on producing automobiles as in the past and its methods of distribution will not be altered.

The Chevrolet Motor Co. at present owns a controlling interest in the General Motors Co., but when the new plan becomes effective there will be only General Motors stock outstanding. This will amount to \$50,000,000 of 6 per cent preferred stock, representing an increase of \$30,000,000, and \$150,000,000 common stock, this being an increase of \$67,400,000, both increases having been recommended.

When the changes are completed the General Motors Corp. various divisions will have a combined output of close to 400,000 cars a year with cars in every price class except the very lowest, ranging from the smallest Chevrolet at \$685 to the Cadillac at \$2,800. Chevrolet alone accounts for 125,000 cars of the 400,000.

The Chevrolet company at present owns 54 per cent of the outstanding General Motors stock, amounting to 450,000 shares. It is proposed that the General Motors Corp. turn over 282,684 shares of its stock to the Chevrolet company, for all its assets except the General Motors stock is now owns.

In other words, when the deal is finally put through, the assets of the Chevrolet company will consist of 732,684 shares of General Motors stock. Against this there will be outstanding some 640,048 shares of Chevrolet having a present par value of \$64,004,800, which is to say that the Chevrolet Motor Co. will then own one and one-seventh shares of General Motors stock for every one of its own. Under the new plan Chevrolet will become the owner of 732,684 General Motors shares out of a total outstanding of 1,108,264.

W. C. Durant, who fathered and developed the Chevrolet Motor Co., will continue head of the General Motors Co. and chairman of the board of directors, in which there have been some changes. E. I. du Pont de Nemours & Co. have acquired substantial stock holdings in both Chevrolet and General Motors, both of which companies are controlled by the du Pont company and Durant, Durant himself being the largest single stock-

holder. L. G. Kaufman has resigned as a member of the finance committee but remains a director, and the du Pont company now is represented on the board of directors by J. A. Haskell, J. J. Raffkob, P. F. du Pont, Irene du Pont and Henry F. du Pont, the last two being elected directors last Thursday.

St. Louis Battery Men Organize

ST. LOUIS, Feb. 25—The St. Louis Storage Battery Association has been organized by representatives of 25 firms. At the preliminary meeting the following temporary officers were elected: H. S. Spooneman, Panama Rubber & Equipment Co., president; Victor Appel, secretary. The following organization committee was named: William O. Suhre, William E. Moerschell, F. G. Fulkerson, Clarence Irvin, E. A. Downey. Meetings will be held the third Monday of each month.

Chandler To Make Tractors

CLEVELAND, Feb. 20—The Chandler Motor Car Co. has been awarded a large contract from the government for the manufacture of tractors. The Chandler contract will necessitate additions to the present plant which will take several years to complete. Although the exact amount of the contract is unknown, it is variously estimated at \$10,000,000 or more. It is understood that the tractor will be of heavy-duty type and will be furnished to the allies by the United States. These two factories, that of Chandler and the Cleveland tractor will make Cleveland a tractor center. The Cleveland Tractor plant will be on a 60-acre tract, and the first section is to be concrete, 180 by 440. This is to be one-fourth of the completed factory and it is to be devoted entirely to the caterpillar type tractor built by the Cleveland concern.

Republic Prices Increased

ALMA, MICH., Feb. 26—Prices of all Republic trucks have been increased, as follows:

Model	New Price
¾-ton	\$995
1-ton	1,295
1½-ton	1,650
2-ton	1,975
3½-ton	2,950
5-ton	4,500

Morse Vice-President of Curtiss

WASHINGTON, Feb. 26—E. C. Morse, former vice-president of the Chalmers company, has been elected vice-president of the Curtiss Aeroplane & Motors Corp. He has been at Washington for some time as the representative of John Willys interests, including the Willys-Overland and Curtiss company.

Standard Parts to Move

CLEVELAND, Feb. 26—The Standard Parts Co. has leased the 3 top floors of a 6-story building to be erected in Cleveland and to be known as the Standard Parts Bldg.

War Secretary Gives Contracts Publicity

Permits Publication of Names of Companies That Are Engaged in Military Manufacture

WASHINGTON, D. C., Feb. 23—Following the action of the Secretary of War, Newton D. Baker, in allowing publicity for military contracts, H. L. Horning, chairman Automotive Product Section, Council of National Defense, has made public the following lists of companies which are working on government truck, motorcycle and passenger car requirements. This list represents only contracts which have come through Mr. Horning's office for approval. No publicity is given to tractor contracts which include tanks or to amounts and sizes of contracts.

TRUCKS

Denby Motor Truck Co.	Detroit
Dodge Bros.	Detroit
Packard Motor Car Co.	Detroit
Hudson Motor Car Co.	Detroit
Four Wheel Drive Auto Co.	Clintonville, Wis.
Garford Motor Truck Co.	Lima, O.
International Motor Co.	New York
Kelly-Springfield Motor Truck Co.	Springfield, O.
Locomobile Co.	Bridgeport
Pierce-Arrow Car Co.	Buffalo
Standard Motor Truck Co.	Detroit
United States Motor Truck Co.	Cincinnati
Vellie Motors Corp.	Moline, Ill.
Bethlehem Motors Corp.	Allentown, Pa.
Brockway Motor Truck Co.	Cortland, N. Y.
Diamond-T Motor Car Co.	Chicago
Gramm-Bernstein Motor Truck Co.	Lima, O.
Indiana Truck Corp.	Marian, Ind.
Selden Truck Sales Co.	Rochester
Service Motor Truck Co.	Wabash, Ind.
National Motor, Motor Car & Vehicle Corp.	Indianapolis
Premier Motor Corp.	Indianapolis
Federal Motor Truck Co.	Detroit
Palge-Detroit Motor Car Corp.	Detroit
Commerce Motor Car Co.	Detroit
General Motors Truck Co.	Pontiac
Nash Motors Co.	Kenosha
Republic Motor Truck Co.	Alma, Mich.
United Motors Co.	Grand Rapids
White Co.	Cleveland
Sterling Motor Truck Co.	Milwaukee
Mitchel Motors Co.	Racine
Kissel Motor Car Co.	Hartford

PASSENGER CARS

Cadillac Motor Co.	Detroit
Dodge Bros.	Detroit

MOTORCYCLES

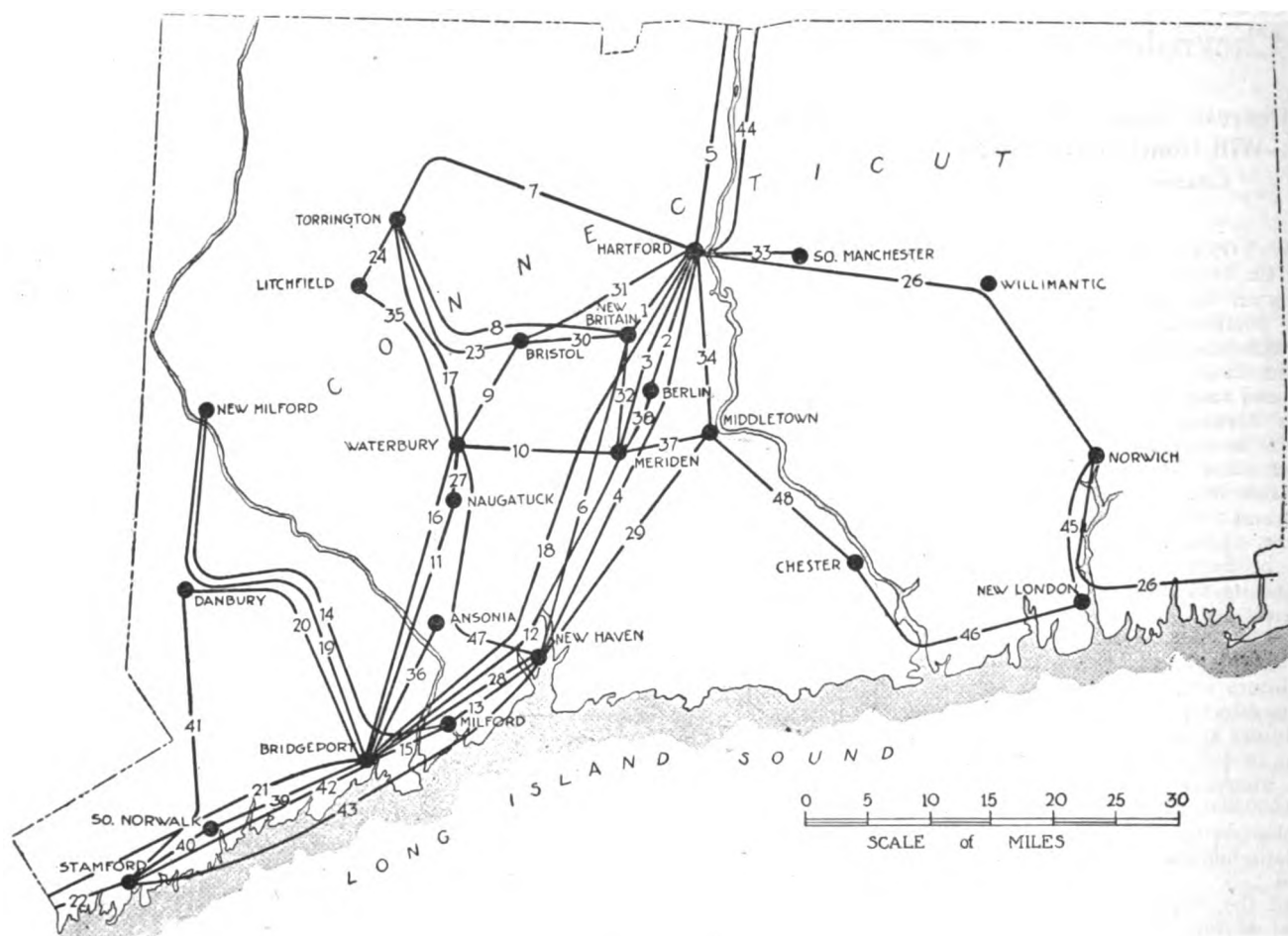
Hendee Mfg. Co.	Springfield, Mass.
Harley-Davidson Motorcycle Co.	Milwaukee

New Boston Republic Dealer

BOSTON, Feb. 23—The Republic Truck Co. of Boston has been formed and has acquired from the Linscott Motor Co. the Republic agency heretofore held by that company. G. A. Patten is president of the new company and J. M. Linscott is treasurer. Headquarters have been established at 570 Commonwealth Avenue pending the completion of a four-story building at 2933 Brookline Ave.

Corbin-Brown Has New Catalog

NEW BRITAIN, CONN., Feb. 25—The Corbin-Brown Speedometer Corp. has published a new catalog which contains considerable information which will be useful to dealers, garagemen and repairmen in the installation and care of Corbin-Brown speedometers. All the Corbin-Brown instruments are illustrated and described.



This map shows the locations of the Return Loads Bureaus and the routes which have been laid out throughout the state of Connecticut

Return Loads

Trucks don't run empty over the roads of Connecticut. In fourteen cities there are bureaus where truck drivers report and where they are told where to pick up Return Loads. More than 700 trucks of 1-ton capacity and over are listed.

NEW YORK, Feb. 23—The State of Connecticut has formed and has in actual operation to-day fourteen Return Loads Bureaus in as many cities in the state for the purpose of relieving railroad congestion by acquainting all the shippers in the state of concerns or individuals who have motor truck equipment available for the overland haulage of goods.

This was the message brought by William S. Conning, Chairman of the Committee on Motor Truck Transportation of the Connecticut State Council of National Defense, to the Highway Traffic Assn. of the State of New York at a meeting held Feb. 19 in the Automobile Club of America.

Connecticut has assumed the leadership in this work, for there is no other state in which a similar system of bureaus has been established. The Return Loads Bureau is a means whereby any shipper desiring to move goods between his own city and any other city may immediately get into communication with either motor truck transportation companies or private individuals owning trucks that are

available for this work either on a contract basis or by separate loads.

In explaining the development of the Return Loads Bureau idea, Mr. Conning pointed out that the Chambers of Commerce or War Bureaus in each of the cities has undertaken the work patriotically and has even had its telephone number listed a second time under the heading "Return Loads," so that any truck operator arriving in any city in the state in which one of the bureaus was established could immediately get in touch by merely asking the telephone girl for "Return Loads."

He also brought out the fact that the Return Loads Bureaus' main function has been to get the shippers and transportation concerns together, leaving to themselves all questions as to the rates charged, the reliability of the haulage concern and the responsibility on the part of haulage contractors for losses.

More than 700 trucks of 1-ton capacity and over are now listed in the fourteen Return Load Bureaus established in as many Connecticut cities. Those cities

which have these bureaus now in actual operation are as follows: Bridgeport, Bristol, Danbury, Greenwich, Hartford, Manchester, Meriden, Middletown, New Britain, New Haven, New London, Norwich, Stamford and Waterbury.

The only city which should have such a bureau and which has not yet put one into operation is Norwalk. The routes between the fourteen cities which have established the bureaus number forty-eight. Each of these numbered routes are drawn up on a large map which is posted in the office of each of the bureaus, so that each bureau may know the routes in other parts of the state over which some of the 700 motor trucks now listed are available for overland haulage.

Furthermore, the head of the bureau in each city knows exactly what trucks are available for any other of the forty-seven routes by means of a master file of the cards listing the available trucks for each route. For instance, the bureau in New Haven knows what trucks are available for haulage work between Dan-

bury and Bridgeport or between Hartford, South Manchester or Norwich.

As practically all of the main highway routes are included in the routes listed by the Return Loads Bureau, the system offers a real network of routes to supply practically every one of the manufacturing centers of the state.

Each motor truck listed is placed on a card with the name and address of the owner, the size and capacity of the truck, the kind of goods it can most economically haul and the number of the route over which it operates.

All of the trucks which run on any particular route are given the same route number and are kept in a file in which the route numbers are arranged numerically. This is a ready means of reference for any route, since each one of the fourteen bureaus is supplied with a complete list of the trucks available on all routes.

Forming the Bureaus

The first step in the formation of a Return Loads Bureau to cover a state or any particular territory in that state is to find out the number of trucks in the territory under consideration.

This done, it is necessary for the main or central bureau to then send out return postal cards requesting information as to the trucks in each particular case; whether or not the trucks are available for overland haulage; the sizes of the trucks; what they can best carry, and the routes they usually run over and how often.

The information obtained from these postals may be entered on index cards, 3 by 5, and filed in a small filing cabinet similar to those used in the average business office. The trucks available for work on any particular route are filed behind a blank card having a marker designating the number of that particular route.

This master file should be duplicated and furnished to each of the local Return Loads Bureaus formed in each of the important cities, together with a map showing the location of each bureau and all of the numbered routes.

Keeping the Bureaus Posted

By this means the head of the bureau in each city knows exactly what trucks are available for any of the other forty-eight routes. For instance, the bureau in New Haven knows what trucks are available for haulage work between Danbury and Bridgeport or between Hartford, South Manchester or Norwich.

As soon as this information has been obtained each of the bureaus should circulate the information that such data is available by means of letters to all of the large shippers and manufacturing plants in its own locality. Each bureau should also request that each shipper or manufacturer give the bureau information concerning its overland haulage needs so that this data may be included on cards similar to those on which the truck data is kept and inserted in the front part of the filing cabinet in each bureau.

Thus, when a shipper calls up any

bureau and asks for the names of available truck owners to haul goods between any two cities, the method is simply to determine the number of the route and then give the shipper the names of the truck owners operating vehicles over that route. Reversely, the names of shippers or manufacturers in any particular city may be had by scanning the cards in the front of the file.

To make it easier for either shipper or truck operator to get in touch with the bureau, the Connecticut organization has arranged to have the regular telephone number of the chamber of commerce listed a second time in the book under the heading "Return Loads." This makes it very convenient for a strange truckman to reach any particular bureau and find out the names of concerns which might have a return load to be hauled to its home city.

Must Sell Trucks, Says Vesper

ST. LOUIS, Feb. 25—Farmers are the best buyers of motor cars to-day and the farmer taste is becoming so diversified that no dealer with a single line of one priced cars can get the best from his business, says F. W. A. Vesper of the Vesper-Buick Auto Co. of this city and president of the National Automobile Dealers' Association. Vesper has attended the large shows of the country and has been feeling the business pulse at these and through his own dealers on both sides of the Mississippi River south of here.

"I am convinced that the south central and southwestern parts of the country are by far the most optimistic motor car states on the 1918 business," said Vesper. "It is difficult to conceive the conditions in Mississippi, Arkansas, Tennessee, eastern Texas and other sections where cotton and lumber are products. These people have been learning to raise food crops to save their money and prices

have been high on their money crops, so they have money and lots of it.

"But the farm trade is changing. By the farm trade I mean the trade sold from rural towns, those towns that cannot be classed as industrial. The farmer is with the automobile just like he is with a horse. He starts with a plug and in a few years wants a big, fat, sleek animal.

"Also he is coming to distinguish between a work car and a carriage. He does not care to haul carrots to market in his passenger car now. He did that with the first car, but now he wants a truck. The dealer who gets the most out of the rural trade must have beginners' motor cars and better grades—they cannot go too high, either. Also he must have trucks. Especially the 1000-lb. models, also heavier ones.

"You cannot sell the farmer to-day by merely convincing him he wants or needs a motor car. I should say that we are selling 85 per cent of cars to rural towns, and this includes our entire price range."

Paige Would Buy Signal Truck

DETROIT, Feb. 18—The Paige-Detroit Motor Car Co. has made an offer to the Signal Motor Truck Co. to buy their entire business and assets. The offer only awaits the ratification of the Signal stockholders which will probably be given after a stockholders meeting to be held Feb. 20 or shortly thereafter. Owners of the preferred stock of the Signal company would be entitled to the full amount provided it does not exceed \$106 a share with accrued dividends. The amount offered is not stated but it is assured by C. P. King and W. K. Hoagland, voting trustees of the Signal company, that it would be sufficient to pay the debts and that it equals the company's sound assets. Holders of the Signal common voting stock would be paid at the rate of \$1 per share.

FREIGHT Help Move it

WE WILL FURNISH FREE OF CHARGE INFORMATION
REGARDING FREIGHT TO BE SHIPPED IN AND OUT
OF NEW BRUNSWICK. MAKE YOUR TRIP COUNT,
BOTH WAYS, AND THEREBY HELP WIN THE WAR.

Board of Trade of New Brunswick, N. J.

APPLY 109 ALBANY STREET.

PHONE 1784

SAVE THIS CARD UNTIL YOU COME BACK.

The Board of Trade of New Brunswick, N. J., has established a bureau to help relieve the railroads by urging the use of trucks and assisting owners to get Return Loads. This is the card which is given every truck passing the bureau. Much freight has been moved by the bureau

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

C. S. Thompson of Chicago has been appointed manager of the foreign sales of the Four Wheel Drive Auto Co., Clintonville, Wis., succeeding J. M. Homs, who resigned to engage in the exporting business in New York City.

C. E. MacConnell has joined the sales engineers' staff of the Hyatt Roller Bearing Co., Detroit. He was formerly advertising manager of the Detroit branch of the Goodrich Tire and Rubber Co.

R. M. Turner has been appointed manager of the Peoria branch of the Harry Newman-Stratton Co. He will succeed Harry Crume.

Louis Schwitzer has been elected president of the Automotive Parts Co., Indianapolis, manufacturer of cooling fans and other accessories. He was formerly vice-president and chief engineer of the Oakes Co., Indianapolis.

Clinton B. Amorous, who has been connected with the sales department of the Locomobile Co. of America for several years, and formerly held the position of assistant purchasing agent, has been commissioned a major in the Signal Corps. At present he is stationed at Washington.

W. F. Schmitt, for many years connected with the Packard-Missouri Motor Co., St. Louis, has been elected vice-president of the organization.

W. B. Cockram has been appointed western sales manager of the United States Motor Truck Co., Cincinnati. He will have headquarters in San Francisco.

T. P. Chase, for several years chief engineer of the King Motor Car Co., Detroit, has resigned.

J. B. Siegfried has been appointed general manager of the King Motor Car Co., Detroit. He has been an executive of the company for several years, first as production manager, and later as assistant general manager.

William Burgess Nesbitt, who for 5 years has been advertising manager of the King Motor Car Co., Detroit, has been elected vice-president of the company, to succeed T. E. A. Barthel. His headquarters will be at 50 Union Square, New York.

A. C. Webb has been appointed district sales representative of the Fulton Motor Truck Co. with headquarters in Atlanta. He will have charge of sales in 7 states.

William D. Paine, for the past ten months eastern sales manager for the Saxon Motor Car Corp., stationed at York, Pa., has been commissioned a captain in the Ordnance Reserve Corps.

C. B. Bunce has been appointed chief draftsman of the Harroun Motors Corp., Wayne, Mich.

A. B. MacGowan, formerly Philadelphia branch manager for the Chase Motor Truck Co., Syracuse, N. Y., and recently district manager for the Fulton Truck Co., has taken charge of the truck department for R. M. Cornwell, Syracuse, N. Y., distributor for Larabee-Deyo trucks.

Lloyd A. Bachman, formerly purchasing agent for the J. C. Wilson Truck Co., Detroit, is now connected with the Commonwealth Brass Corp., formerly the Lavigne Manufacturing Co., in charge of publicity and research work.

Owen Moynihan has been appointed gen-

eral sales manager of the Amazon Rubber Co., Akron, Ohio. He was formerly manager of the New York branch of the Amazon Company.

H. O. C. Isenberg, formerly engineer of the Scripps-Booth Corp. of Detroit, is now with the Wright-Martin Aircraft Corp.

F. M. Holden, formerly in the airplane engineering department of the Signal Corps, at Washington, is now research engineer of the Cadillac Motor Car Co.

Harold G. Wilson, for 7 years sales engineer of the automobile division of the Hyatt Roller Bearing Co., Detroit, and who left that position to join Holley Brothers, has returned to the Hyatt company to represent the tractor division in Detroit and vicinity.

J. H. Cohen, formerly of the Studebaker Co., Atlanta, Ga., is now connected with the Jos. G. Blount Co., and will devote his energies to the selling of Chalmers cars.

H. M. Ross is now district sales manager of the United States Motor Truck Co. with headquarters in Chicago. Ross entered the motor truck sales field in 1899 and has held connections with the White, the Federal Motor Truck Co. and the International Harvester Co.

Changes in Velie Organization

MOLINE, ILL., Feb. 26—The Velie Motors Corp. has made several changes in its organization. Charles R. Gardner, formerly manager of the Velie branch at Omaha, has been appointed assistant sales manager, and will be located at the Velie factory. L. H. Hazard has been appointed superintendent of production, to succeed C. B. Rose, who has been commissioned a major in the United States Army. G. E. Martin will fill Hazard's place as chief engineer. F. D. Soper has been appointed purchasing agent and C. E. Mason traffic manager.

George K. Birge

BUFFALO, Feb. 23—George K. Birge, reorganizer of the Pierce-Arrow Co. of Buffalo, and its president for many years, is dead. In 1896 Mr. Birge reorganized the George N. Pierce Co., then manufacturing bicycles.

Plan to Standardize Automotive Material

Meeting in England to Discuss Elimination of Difficulties That Confront Buying Agents

WASHINGTON, Feb. 23—Standardization of manufacturing materials related to production of motor cars, motor trucks, airplanes, tractors and machinery takes a new step with the announcement of arrival in England of delegates from all the allied countries for conference on International Standards. The American delegation, headed by F. G. Diffin representing the Aircraft Production Board, arrived safely late last week, and includes members from all the prominent American engineering societies: The Society of Automotive Engineers, American Society of Mechanical Engineers, American Society of Testing Materials, etc. There are also members from the Aircraft Board, the Advisory Committee on Aeronautics, the Signal Corps, the Navy and the original International Aircraft Standards Board, from which this conference is an outgrowth.

The following is the list of the American members: F. G. Diffin, chairman; Dr. W. F. Durand, Lieut.-Commander Benjamin Briscoe, Lieut. W. F. Prentice, E. H. Ehrman, Charles M. Manley, James Hartness, Albert L. Colby, Capt. A. B. Tilt, F. G. Ericson, C. F. Clarkson and F. R. Baxter.

No attempt will be made by the conference to standardize airplane construction but rather those materials and units which are at present causing difficulties in purchase and delivery and for which suitable standards can be set.

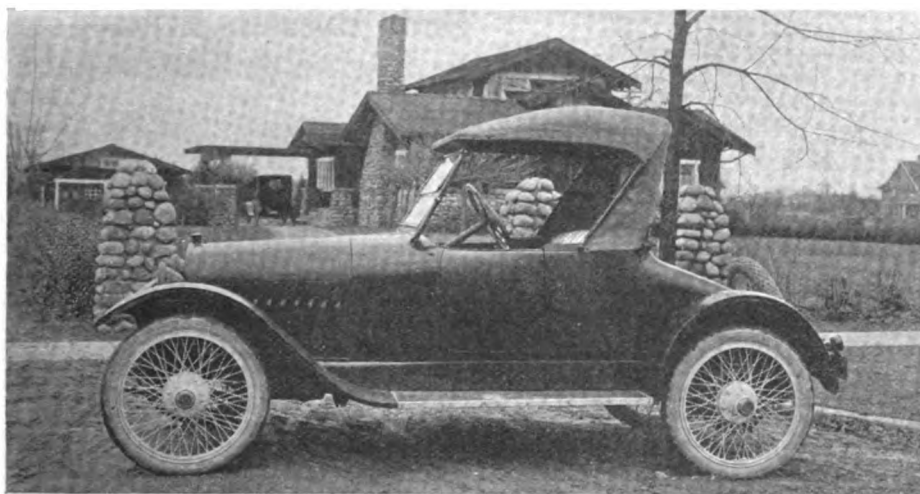
Henderson Quits Supply Trade

YOUNGSTOWN, OHIO, Feb. 23—The Henderson Auto Supply Co. has discontinued its automobile accessory line and sold its entire stock.

Motor Securities Quotations

	Bid	Asked		Bid	Asked
*Ajax Rubber Co.	53½	57½	*Maxwell Motor Co., Inc., 1st pfd.	60	63
*J. I. Case T. M. Co., pfd.	83	85	*Maxwell Motor Co., Inc., 2d pfd.	24	25
Chalmers Motor Co., com.	5½	7½	Miller Rubber Co., com.	135	140
Chalmers Motor Co., pfd.	25	40	Miller Rubber Co., pfd.	95	98
*Chandler Motor Co.	89	91	Packard Motor Car Co., com.	96	104
Chevrolet Motor Co.	128	129½	Packard Motor Car Co., pfd.	90	93
*Fisher Body Corp., com.	28	30	Paige-Detroit Motor Car Co.	18	19
*Fisher Body Corp., pfd.	80	87	Peerless Truck & Motor Corp.	17½	18½
Fisk Rubber Co., com.	50	53	Portage Rubber Co., com.	113	115
Fisk Rubber Co., 1st pfd.	98	103	Regal Motor Car Co., pfd.		
Fisk Body Corp., 2nd pfd.	70	75	Reo Motor Car Co.	18	19
Firestone Tire & Rub. Co., com.	96	98	*Saxon Motor Car Corp.	10	11
Firestone Tire & Rub. Co., pfd.	97½	100½	Springfield Body Corp., com.		
*General Motors Co., com.	125	126½	Springfield Body Corp., pfd.		
*General Motors Co., pfd.	83	85	Standard Motor Construction Co.	12	13
*B. F. Goodrich Co., com.	41½	42½	Standard Parts	65	68
*B. F. Goodrich Co., pfd.	93	100	*Stewart-Warner Speed. Corp.	56	58
Goodyear Tire & Rub. Co., com.	135	140	*Studebaker Corp., com.	51	52
Goodyear Tire & Rub. Co., pfd.	98	100	*Studebaker Corp., pfd.	92	96
Grant Motor Car Corp.	2	3	Swinehart Tire & Rubber Co.	3	5
Hupp Motor Car Corp., com.	21	21½	United Motors Corp.	28½	28½
Hupp Motor Car Corp., pfd.	75	80	*U. S. Rubber Co., com.	56½	57½
International Motor Co., com.	13	17	*U. S. Rubber Co., pfd.	100	102
International Motor Co., 1st pfd.	35	45	*White Motor Co.	44	45
International Motor Co., 2nd pfd.	14	17	*Willys-Overland Co., com.	18½	19½
*Kelly-Spring'd Tire Co., com.	45	48	*Willys-Overland Co., pfd.	80	81
*Kelly-Spring'd Tire Co., 1st pfd.	75	80			
*Lee Rubber & Tire Corp.	15	16			
*Maxwell Motor Co., Inc., com.	27½	28½			

*At close Feb. 23, 1918. Listed N. Y. Stock Exchange. †Par \$10 per share.



THE Harroun Motors Corp. has added a roadster to its line. It is a two-passenger type but with a seat wide enough to accommodate three persons if necessary. Its general characteristics are quite similar to the Harroun touring car, and it is mounted on the same chassis. It has a modified rear deck with tire carrier in the rear. The price is \$995, and wire wheels are \$100 extra.

First Liberty Airplanes On Way to France

WASHINGTON, Feb. 21—The first American built battle planes are to-day en route to the front in France. These planes are equipped with the first Liberty airplane engines from machine production. One of them in a recent test surpassed all records for speed and climbing for planes of battle type.

Engine production which began a month ago is now on a quantity basis and the peak of production will be reached in a few weeks. Only the 12-cylinder type is being manufactured, as developments abroad have made it wise to concentrate on the high powered engine instead of the 8-cylinder one.

This first shipment, though not in itself large, marks the final overcoming of many difficulties met in building up this new intricate industry. The great remaining problem is to secure the thousands of skilled mechanics, enginemen, motor repairmen, wood and metal workers and so forth, needed to keep the planes in perfect condition.

This great engineering and mechanical force at the airdromes, the flying fields, and the repair depots, both here and behind the lines in France, is a vital industrial link in the chain of air supremacy. Without them, the planes turned out are useless and the flyers helpless.

The above statement, issued to-day by Secretary of War Baker, is designed to give as complete a picture as permissible, under military requirements, of the progress of our air service.

In reviewing the air problem, Secretary Baker points out that after three years of warfare the total number of planes able to take the air at any one time on either side of the western front has not been over 2500.

This, combined with the fact that 46 men are required on the ground for every plane in the air, gives a better perspective of European aviation conditions than

has been commonly possessed on this side.

Every plane in the air requires two replacement planes on the ground and one training plane for every pilot who eventually reaches the front, with a spare engine for each plane. The first American-made battle planes were not due in France under the original schedule until July.

Jackson Made Zenith Sales Manager

DETROIT, Feb. 25—R. F. Jackson, formerly assistant sales manager of the Zenith Carburetor Co., has been appointed sales engineer, succeeding P. E. Miquelon, who has been placed in charge of the Chicago branch. R. H. Taylor, former manager of the Chicago branch has succeeded V. I. Shobe as manager of the New York branch, who was recently appointed sales manager of the Zenith company.

And here is the pretty little Dutch girl who looked out at the throngs that passed the exhibit of Van Cleef Bros., at the Chicago show. We are inclined to believe that not many persons refused the advertising literature she offered. Why a Dutch girl? Just because Van Cleef products are branded "Dutch"



St. Louis Dealers Want Used Cars

ST. LOUIS, Feb. 25—Practically every used car dealer here is in the market for cars—especially light cars. All dealers are looking forward to an excellent season and are anxious to acquire more stock.

Ford dealers are not selling used cars they have in stock. One dealer admits that he has 30 passenger cars on hand and that he did not sell one during the street car strike, when prices were advanced somewhat on light used cars. He preferred to take his chances on sales later in the year. At present Ford dealers here are three weeks behind on deliveries of new cars. Since a year ago there has been a notable improvement in the housing of the used car departments of the larger automobile agencies. Then the used cars were put any place and allowed to sell themselves. Within the year, several departments have been moved into good show rooms, where window displays are used and the trade given a considerable boost in tone.

Chevrolet Car Sales Double in 1917

DETROIT, Feb. 23—Sales of the Chevrolet Motor Co. in 1917 amounted to \$62,638,303 for 125,004 cars as against \$32,306,295 for 62,522 cars sold the year before. This represents an increase of 99.8 per cent in the number of cars sold, and 93.9 per cent in the cash value.

These figures were given out in the preliminary report of the General Motors Co. The same report shows undivided profits for that company for the 5 months ended Dec. 31 of \$15,000,000 compared with \$11,238,984 in the corresponding period of 1916.

	1917	1916	Increase
Net sales....	\$94,500,000	\$60,731,130	\$33,768,870
Cars and trucks sold	89,901	65,893	21,008
Undivided profits	15,000,000	11,238,984	3,761,016

St. Louis Car Strike Booms Automobile Sales

**Used Vehicle Dealers Do Land Office
Business—Sale of Gasoline In-
creased 100 Per Cent.**

ST. LOUIS, Feb. 20—A street car strike that lasted nearly a week emphasized, as nothing had done before, how thoroughly the city has been motorized, as 60 per cent of the workers go to their jobs in motor cars. Here are some of the things the strike did:

Caused the immediate lifting of fuel and light restrictions on garages and repair shops.

Increased sales of gasoline and oil from 100 to 125 per cent in all filling stations.

Sold all of the chains in the local accessory stores.

Gave to the used-car dealers their biggest week and disposed of most of the light cars in stock.

Supplied the busiest day the local state tag and chauffeur license office has experienced.

Brought into running automobiles that never had been used in winter before.

Created a demand for light trucks to be used for passenger carrying vehicles that could not be met.

Extortionate charges by service car chauffeurs caused a police regulation to be made that no service car should run that did not display route and charge on sign. Taxicab companies maintained regular fees.

There was a quick boom in new car sales, but it did not equal that of the used-car departments, as many of the latter were bought to be used as service cars with visions of paying for them during the strike.

The Brandle Motor Co., Chevrolet and Wescott distributors, put 15 cars into service at stated periods to carry women home from downtown during rush hours, the service being entirely free.

Willys-Overland Issues Traffic Bulletin

TOLEDO, OHIO, Feb. 22—The traffic department of the Willys-Overland Co. has issued the following bulletin in order to keep their dealers closely in touch with the railroad traffic situation:

"It is, at the present time, and has been for some time, impossible to obtain sufficient automobile freight cars to currently move our production. Every effort is being made by this department to get just as large a supply of cars as possible, but regardless of our efforts, shipments of passenger cars are bound to be interfered with and the advent of severe weather and heavy storms tightens up the situation more than ever.

"Snow storms and freezing weather make it absolutely necessary to reduce the size of trains hauled, slow up speed on the roads and add further to severe delays at all points.

"Dealers and distributors should bear this situation in mind so they will know just what difficulties are being encountered, not only in

moving the production from the plant, but after it gets under way when it meets with serious delays in transit. It is barely possible that the freight car situation will become so acute that any and every method of getting machines from the factory to our dealers and distributors will have to be used during the next 3 or 4 months. Dealers and distributors should be prepared to meet this emergency by arranging to drive machines away from the factory whenever possible."

Airplane Inventors, Attention!

WASHINGTON, D. C., Feb. 22—The National Advisory Committee for Aeronautics, Munsey Building, Washington, D. C., requests all parties desiring to bring to the attention of the Government inventions pertaining to aeronautics to submit them to the committee. In order to secure attention, such inventors must have comprehensive outlines of the proposed devices together with necessary drawings, data and the results of tests if tests have been made. All suggestions of inventions will be considered confidential, and if found of merit will be submitted to the proper officials with suitable recommendations. A special sub-committee on engineering problems has been formed to examine the inventions. It is suggested by the committee that all inventors secure competent scientific and technical advice before taking the time of the Government officials with devices which clearly violate scientific laws or are contrary to the best aeronautic practice.

New Erd Tractor Engine

SAGINAW, MICH., Feb. 21—A new Erd tractor engine has been developed by the Erd Motor Co. and will be in production in May or June. The company is erecting a factory addition 404 x 121 that will add 48,000 sq. ft. floorspace. The new engine is a four-cylinder, vertical, block design, having the valves in a detachable cylinder head. The cylinders, 4¼ x 6, are waterjacketed their entire length, and the spark plugs are set in a waterjacketed part of the wall. Complete provision is made for fitting starting and lighting equipment and the engine is intended for burning kerosene. Special attention is given to the oiling system, which is pressure throughout, including crankshaft, camshaft and piston pin bearings, with oil delivered by pump to the rocker arm for the valves. Specially large bearings are used, the crankshaft bearings being 2½ inch diameter and the three bearings having a total length of 13½ in.

Canada Buys Ford Tractors

MONTREAL, Feb. 21—The shortage of farm laborers in the Canadian Northwest has caused the Dominion government to help the farmers. A thousand Ford tractors have been purchased, and an option secured on another thousand. These will be sold to farmers at cost plus freight charges, and will average about \$800 each. The Ford company cannot begin delivery before the end of March.

Buda Exhibits Tractor Engine at Kansas City

**Is Designed Especially to Use Kero-
sene Fuel—Complete Oiling
System Employed**

CHICAGO, Feb. 22—Buda has exhibited this week at the Kansas City tractor show its new tractor engine designed especially to handle kerosene fuels and which engine is being used in the latest model of Parrett tractor. The new job, model HTU, incorporates a detachable cylinder head, the first design of this kind to come from the Buda company. This makes it possible to give engines of different compressions for high altitude plowing and also admits of many other good features of construction, such as ample waterjacket spaces in the head, more efficiency production of castings, and greater ease in removing carbon.

The engine is a four-cylinder, L-head block 4½ x 5½ rated at 32 hp. at 1100 r.p.m. It has provision on the front motor arm for an electric generator and on the rear motor arm for an engine starter. Provision is also made for governor mounting.

To make the use of kerosene more efficient the spark plugs mounted in the cylinder head are specially waterjacketed, the waterjackets extending 1½ in. lower on the cylinder wall than usual, the pistons are a looser fit, they have cross ribs on the under face of the head to aid in heat radiation, the flywheel is nearly double the weight used in former models of the same size, and the crankshaft bearing area is one-third greater and the crankshaft approximately 25 per cent stronger than the same size engines made by Buda.

A complete pressure oiling system is used. A cold compression of 65 lbs. is used, the engine oil pan is made in two parts, so that the crankcase is really in three pieces with horizontal divisions between them. The object is that the bottom part can be removed without interfering with the bell housing which encloses the flywheel.

The Buda factory in Harvey, a suburb of Chicago, is turning out 85 engines of different models per day and an addition is being erected. Last fall the company instituted the policy of building only four-cylinder engines and building these for truck and tractor uses only.

Eldridge Heads Seattle Dealers

SEATTLE, Feb. 22—At the annual meeting of the Seattle Motor Car Dealers' Association, A. E. Eldridge, head of the Eldridge Buick Co., was chosen president; W. S. Jones, vice-president; Harry Austin, secretary, and Hugh Baird, treasurer.

The ambition of the association during the coming year as outlined by the president-elect will be to build up such an organization as will be a credit to the community and the country at large.

Official O.K. Required for Federal Purchases

Dealer Will Not Be Reimbursed for Supplies Bought Without Written Authority

WASHINGTON, D. C., Feb. 9.—Purchasers of automobile supplies for Government-owned automobiles or trucks must have official sanction. Many dealers selling automobile supplies to uniformed soldiers and commissioned and non-commissioned officers without display of the proper authority stand little chance of being reimbursed.

When an officer or private requires supplies for a car or truck owned by the Government he must first secure written permission to make the purchase from the officer in charge of his division, who in turn first secures the permission from the highest authority.

When an officer or private desires to make a purchase he should be asked to display his written authority. The dealer should make note immediately of the organization number, the name of the officer signing the purchase order and the name of the officer or private making the purchase.

The organization number is either on the written order or can be secured for the asking. The bill for the merchandise purchase should be sent to the Depot Quartermaster in charge of that section of the country where the purchase is made.

The bill should be an itemized account of all articles purchased, and in order to secure recognition it should state the organization number, the name of the officer signing the order and the name of the officer or private making the purchase.

The dealer should be certain in every transaction of this sort to secure a written receipt from the officer or private making the purchase.

Packard Truck Prices Raised

DETROIT, Feb. 21.—Effective March 1, the Packard Motor Car Co. will advance the prices of all truck models according to the following tabulation:

	Old Price	New Price
1-ton.....	\$2,450	\$2,650
1½-ton.....	2,800	3,000
2-ton.....	3,200	3,400
3-ton.....	3,900	4,100
4-ton.....	4,375	4,450
5-ton.....	4,900	5,150
6-ton.....	5,150	5,400

1400 Chevrolets for California in February

OAKLAND, Feb. 21.—The Chevrolet Co. of California estimates it will turn out approximately 1400 cars during the present month. At the beginning of the month there was a total of 1500 cars on order. The company will spend about \$1,000,000 in additions and improvements to the present plant.

THAT MOTOR CAR YOU OUGHT TO HAVE!

Do you pay for it anyway—
whether you own it or not?
Think about it!

ONE big man in the motor car industry recently expressed this opinion—that the business man (or firm) who doesn't buy what he needs to make himself 100 per cent efficient, whether it is a cash register, an adding machine or a motor car—eventually pays for his short-sightedness in lost motion and lost profits! In other words—if you could accomplish *more with* a motor car, and are losing something by denying yourself, aren't you paying for it anyway?

The sensible conclusion is—if you have a *good car, keep it!* If you cannot afford from a personal efficiency standpoint to be motorless, *buy a car now* before the price advance comes!

.....

"What the railroads are to the nation, motor cars are to individuals." —John N. Willys.

The automobile makes the shortest distance between two points in the transportation field.

We are taking men from our industries to fight. Their lost efforts must be replaced. It will take time to replace them. The motor car makes time. Therefore, it is essential just as other time-saving devices, such as the telephone or telegraph.

When the question was first presented, some men said it was not patriotic to buy a motor vehicle *today*—as "the government might need the money." But, on second thought, they admitted there was no logical reason for such an assertion. For, as a matter of fact, when a car is bought the money simply changes hands. And this money is still quite available to the government. But, in the time before the government needs it, the money thus put into circulation has also placed one more time-saving utility in service.

.....

The Kansas City Motor Car Dealers Ass'n

How Kansas City "Brought Back" the Public

THE public in Kansas City became alarmed. It had false notions about economy and saving. It began to believe it should not spend money. It was told by some people that it is unpatriotic to spend. The Motor Car Dealers' Association saw dire possibilities in the situation and determined to do its bit in stabilizing business and in turning a policy of restriction into one of expansion.

A series of advertisements was prepared by the Ferris-Hanly Advertising Co. and run in the Kansas City newspapers before and during show week—11 ads in all. They have also been made into a booklet and were distributed at the

show. The agency, co-operating with the dealers' association, will extend permission to any newspaper to use the ads at a rate of \$10 per ad.

Levy Adds Fulton Truck

CHICAGO, Feb. 22.—Another indication of the spread of the automotive idea comes from Chicago, where James Levy, retail distributor of the Buick, Saxon and Premier, has added the Fulton truck.

Overhaul Equipment for Ford Repairs

DETROIT, Feb. 23.—The Ford Motor Co. is arranging to supply dealers and garagemen with complete sets of all tools and fixtures necessary for Ford overhaul and repair work.

Maryland Automobile Law Radically Changed

Tractors Are Classified as Motor Vehicles—License Fees Increased.

BALTIMORE, Feb. 22.—Maryland is going to have a new automobile law, which will make a number of sweeping changes in the present law and also provides for many improvements as a protection to the motorists. The entire law has been rewritten and changes introduced to conform with the modern idea. The bill has been introduced into the Senate of the State Legislature and was prepared by E. Austin Baughman in conference with Osborn I. Yellott, counsel for the A.A.A. and the Auto Club of Maryland, and was in its present shape drafted by the state law department.

Provision is made for the abolishing of the horn traps, which are set up in the rural counties. The definition "motor vehicle" has been enlarged to include tractors and traction engines and to make vehicles with two or more solid tires. The motor Vehicle Commissioner is also given the power to define any disputed cases. No exemption is granted to anyone to use a motor vehicle in Maryland except state, cities, counties, towns, or villages, in section 135.

License Fees Increased

Fees for motor vehicles have been revised as follows: Class A provides a minimum fee of \$10 for pneumatic-tired vehicles instead of \$5; Class B, solid tires, is raised from \$8 to \$12 for vehicles having a rated carrying capacity of not more than 1 ton and the increase is from \$6 to \$9 for each additional ton; Class C, motorcycles, increased to \$5 from \$3; Class D, dealers, to \$25 for first two sets of tags, an increase of \$5 for each set. Additional sets will cost \$12 each instead of \$10; Class E, motorcycle dealers, increased from \$8 to \$20 for first four sets of tags and \$5 instead of \$2 for additional tags; Class G (new), trailers, provides \$5 for each ton carrying capacity; Class H (new), tractors and tractor engines, flat charge \$25. Owners must not furnish their own markers.

Section 143 is changed and provides an age limit of 18 years. Persons learning to operate must obtain a permit for \$1, and must also be examined and all future applicants for licenses must be examined. Section 144 provides a fee of \$1 for operators of bicycles with motor attachments and the same fee for operators of tractors and traction engines.

Section 145 gives the commissioner broad powers to suspend registration of any vehicle which is so constructed or operated as to cause unreasonable damage to the public highway. The penalties are increased from a minimum of \$25 to a minimum of \$100 and the maximum of from \$100 to \$1,000 in addition to imprisonment of from not less than 30 days to one year. The law applies to operator and owner alike.



—Courtesy Diamond Rubber Co.

In Section 149 the speed limit of solid tire vehicles weighing 2 tons or less is reduced to 25 miles maximum, 2 tons and not in excess of 6 tons, 15 miles; over 6 tons, 12 miles. The existing law allows vehicles over 4 tons and not in excess of 8 tons 15 m.p.h., and those over 8 tons 12 miles. The maximum speed in thickly populated sections for all motor vehicles is 15 miles instead of 12 miles, and outlying sections of communities 18 miles. In the open country reasonable care in the operation of the machine is provided, the driver being the judge in that particular. Penalties for exceeding 60 miles an hour are from \$100 to \$1,000 or imprisonment of not less than 30 days nor more than one year.

Service Chain for Flechter

NEW YORK, Feb. 22.—The L. V. Flechter Co. will establish service stations for its carbureters in all important cities. Following are a number of stations recently established: Neptune Motor Co. of Chicago, Cincinnati, Portland, Ore., and Los Angeles; Alex Brunner & Son, Newark, N. J.; Burts Supply Agency, Atlantic City, N. J.

New Goodyear Cushion Tire

AKRON, Feb. 22.—The Goodyear Tire & Rubber Co. is placing on the market a new type of cushion tire designed to give economical service for delivery work. The tire has been in preparation for more than 2 years and in cross section somewhat resembles an inverted Y, having a fabric reinforced double base fitting a clincher-flanged rim. A metal ring around the center holds the double

bases of the tire, preventing buckling and eliminating the possibility of twisting or slipping on the rim. The tread has a practical wearing thickness equal to that of similar size solid tires. The tire is made of a specially prepared rubber compound in which are combined great resiliency and toughness.

Changes in McGraw Organization

EAST PALESTINE, OHIO, Feb. 22.—The McGraw Tire & Rubber Co. has made several changes in its organization. E. E. Hayslett has been appointed assistant treasurer, with H. B. Callahan as assistant. Robert Chaplow will be production superintendent, and former traffic manager A. C. Redman will be industrial manager. W. E. Palmer has been promoted to manager of the service department to succeed J. E. O'Hara, resigned; R. G. Nelson will be Pacific Coast district manager.

24,000,000 Champion Plugs in 1917

TOLEDO, Feb. 21.—The Champion Spark Plug Co. manufactured 24,000,000 plugs during 1917. This is 4,000,000 more than the goal set by the company at the beginning of the year. December was the most productive month with a total of 2,500,000 plugs. The company intends doubling its capacity during 1918.

New Building for Motor Parts Co.

PHILADELPHIA, Feb. 21.—The Motor Parts Co. has moved to a new building at 847 Broad Street, with 25,000 sq. ft. of floorspace. The company recently added an export department to its regular accessories business.

Detroit-to-Chicago Drive-Aways Begun

Clearing of Roads Enables Michigan Factories to Dispatch Cars to Western Territory

CHICAGO, Feb. 22—Drive-aways from Michigan factories to Chicago and points West have begun to-day with the partial clearing of the roads by efforts of road crews and the recent short thaw. The local Dodge distributor received word from the factory that the road is open between Chicago and Detroit, and a crew of ten men left the factory Monday and five more the following day.

There are twelve cars on the way to Chicago from the Reo factory at Lansing and they are reported to have reached Michigan City. One hundred cars for the Buick Chicago branch left Flint Tuesday night, so that the drive-aways are on in earnest, although no cars have come through as yet, and there is a possibility that conditions in some parts will be so bad that the crews may be held up a few days.

The train of Reos is particularly well equipped to buck the snow, being preceded by a car equipped with a rotary snow plow which is expected to make roads through the drifts which still exist. The local Reo distributor expects to receive eight or ten cars a day throughout the season.

In order to determine the road conditions for the Buick fleet, the entire road is to be covered before Tuesday night by cars from Flint, Benton Harbor, Michigan City and Chicago, each traversing a certain section of the road. These cars will have a crew of five men equipped with shovels, etc., to clear away the drifts at the worst spots, and have the roads ready for the fleet of 100 which will start from the factory.

The Chicago Buick distributor has arranged for a schedule of from 100 to 150 cars per day over the roads, and it may be that before the season is over the high water mark of 185 Buicks per day, which was reached last summer, will be duplicated.

The possibility of using the Lake boats for shipment to Chicago from Michigan factories is being investigated seriously, and if possible, cars will be driven from a number of factories to ports on the east side of the Lake and shipped by boat to Chicago.

Scarcity of bottoms, however, may prevent this being done to any great extent. Studebaker is arranging to ship by boat from Grand Haven and Maxwells may be shipped by boat if bottoms can be obtained.

Harry Newman, the local Maxwell distributor, is endeavoring to charter his own ships which, if they can be obtained, will be used to carry raw material on the eastern trip and Maxwells on return, thus saving railroad capacity both ways. At the present time, Maxwells have been

arriving in the Chicago district by railroad, in sufficient quantities, and it is expected that this month will prove one of the biggest in the year.

The circus cars and other flat cars of the Oakland company, some of which are owned and some leased, have made it unnecessary for local Oakland distributors to worry about drive-aways.

Utilizing Chicago as a shipping platform for Michigan car manufacturing centers is an innovation which has been put into force by the Reo company. The factory maintains a crew of eight men at the Chicago branch which loads the cars received by drive-away on freight cars for shipment for the West. Reo also has been using 25 horse cars and express cars which it has leased for railroad shipment.

Williams Head of Highway Industries Association

WASHINGTON, D. C., Feb. 22—The Highway Industries Association held a meeting here Saturday and elected the following officers and directors: President, S. N. Williams, sales manager of the Garfield Motor Truck Co.; first vice-president, A. R. Hirst, Wisconsin State Highway Engineer; second vice-president, E. J. Mehren, McGraw-Hill Publishing Co.; third vice-president, S. T. Henry, Allied Construction and Machinery Corp. Directors include Windsor T. White, White Company, Cleveland, representing the motor truck industry through the N. A. C. C.; William E. Metzger, Columbia Motor Co., representing the motor car industry through the N. A. C. C.; W. O. Rutherford, sales manager B. F. Goodrich Company, representing the Motor and Accessory Manufacturers' Association; A. N. Johnson, Portland Cement Association; W. P. Blair, National Paving Brick Association; A. P. Sandles, National Crushed Stone Association; H. J. Love, National Stone Association; S. J. Morrison, National Association Asphalt Block Manufacturers; E. G. Sutton, National Association, sand and gravel producers, and S. T. Batty, National Association Road Machinery Manufacturers. An executive committee was appointed including Williams, Hirst, Mehren, Henry, Johnson, Blair, Sandles, White and Rutherford.

The association, which now represents industries valued close to three billion dollars and employing 1,500,000 men, will devote its efforts to the location of Washington offices, after which it will get down to active business.

\$50,000,000 for Tanks

WASHINGTON, Feb. 23—It became known to-day that fifty million dollars has been appropriated for the purchase of tractor tanks ranging from 12 to 125 h.p. The tanks, which will be ordered, have already been tested by officers of the American and the Allied armies.

3000 Flats Needed to Move Tractor Output

Stock Piling Up and Unless Shipped in Ten Days Factories Will Have to Close

KANSAS CITY, Feb. 23—More than 3000 railroad flat cars are needed right now to move the farm tractors that have been completed for several weeks. Factories are so crowded that all available space within the factory is used for storage, and at some factories machines are lined up on the streets.

So acute has the situation become that some of the tractor factories will have to close within 10 days if the machines are not moved. One large tractor maker in Indiana had only twelve freight cars in the month of January to move his tractors away, whereas he needed 200 cars.

There is not a tractor factory but is being handicapped financially by the inability to ship machines. Even small tractor factories have from \$100,000 to \$200,000 money tied up in completed machines that cannot be shipped for lack of freight cars.

So acute has the car shortage become that to-day a telegram was forwarded to Secretary A. G. McAdoo asking that tractor makers be given consideration in the use of railroad cars. There are farmers in southern Texas and other parts of the South that to-day need their tractors for farming but they cannot get them. The production of the 1918 crop is already suffering because of lack of machines. Soon the spring will move northward through the great grain belt and tractors must be needed in increasing quantities and unless the railroad situation clears up the spring crop will suffer.

The Avery company, Peoria, has several hundred machines ready for shipment and waiting for a month. All available storage space in the factory is taken up, the yard is filled and street space occupied. Emerson-Brantingham in Minneapolis has its yard filled, and strings of machines on the street in front of the factory. The Minneapolis Steel and Machinery Co. making the Twin City tractor has its huge factory space filled with completed parts and lacks room for the proper assembly of machines. The Grey Tractor Co. in Minneapolis has its yard well filled with tractors crated for France but lacks railroad facilities to move them. The Parrett Tractor Co. in Chicago is well situated for shipping and has not suffered to the same extent that others have, but has a large quantity of tractors awaiting shipment.

Kanawha Dealers Organize

CHARLESTON-KANAWHA, W. VA., Feb. 21—The Automobile Trade Assn. of Kanawha County has been organized here by members of the automobile trade. C. A. Ellison of the Triple State Electric Co. was elected president; C. A. Middelburg of the Middelburg Garage, vice-president; E. A. Fruth of the Fruth Garage Co., secretary, and H. M. Ward, treasurer.

Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starting	Clutch	Gearset	Wheelbase	Tires	Rims	2- Passenger	5- Passenger	7- Passenger	Coupe	Sedan	Limousine	Detachable Top	
ABBOTT	6-31x5 1/2	29.4	Remy	Stumg	Remy	DD	3	122	34x4	SS	1595	1595	1595	2150	2150	2150	.....
ALLEN	6-31x5 1/2	22.5	Conn	Stumg	A-Lite	D	3	112	32x3 1/2	SS	11095	1095	1095	1395	1395	1395	.....
AMERICAN	6-31x5 1/2	29.4	G & D	Zenith	G & D	D	3	122	32x4	SS	1375	1375	1375	1375	1375	1375	.....
ANDERSON	6-31x5 1/2	25.3	Conn	Zenith	Weths	DP	3	120	33x4	SS	11465	11465	11465	2165	2165	2165	.....
APPELSON	6-31x5 1/2	29.4	Conn	Zenith	Weths	D	3	120	32x4	SS	11925	11925	11925	2165	2165	2165	.....
AUBURN	8-31x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4	SS	12650	12650	12650	2550	2550	2550	.....
6-39-B	6-31x4 1/2	25.3	Remy	Radd	Remy	DP	3	120	34x4	SS	1346	1346	1346	1346	1346	1346	.....
6-44	6-31x5 1/2	29.4	Delco	Radd	Delco	DP	3	131	35x4 1/2	SS	1685	1685	1685	2450	2450	2450	.....
AUSTIN	6-31x5 1/2	29.4	Delco	Radd	Delco	DP	3	131	35x4 1/2	SS	1685	1685	1685	2450	2450	2450	.....
H.C. King	12-21x5	39.6	Delco	Stumg	Delco	D	6	142	34x4 1/2	QD	3750	3750	4000	4550	5000	5250	.....
HIDDLE	4-31x5 1/2	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	2600	2600	2600	4100	4000	4000	.....
BOUR-DAVIS	6-31x5 1/2	29.4	West	Stumg	West	DP	3	118	33x4 1/2	QD	7200	7200	7200	8400	8500	8500	.....
18B	4-31x5 1/2	22.5	West	Stumg	West	DP	3	118	32x4 1/2	QD	7200	7200	7200	8400	8500	8500	.....
BREWSTER	4-4	25	6 Bosch	Zenith	U.S.L.	C	3	125	34x4 1/2	SS	7200	7200	7200	8400	8500	8500	.....
BRISCOE	4-31x5 1/2	16.3	Conn	Buick	A-Lite	C	3	104	30x3 1/2	C	725	725	725	1185	1845	1845	.....
BUICK	4-31x5 1/2	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	795	1185	1845	1845	.....
E 4-34-35	6-31x4 1/2	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	1265	1695	2175	2175	.....
E 44-45	6-31x4 1/2	27.3	Delco	Marvel	Delco	DP	3	124	34x4 1/2	SS	1495	1495	1495	2175	2175	2175	.....
E 49	6-31x4 1/2	27.3	Delco	Marvel	Delco	DP	3	124	34x4 1/2	SS	1495	1495	1495	2175	2175	2175	.....
CADILLAC	8-31x5 1/2	31.2	Delco	Own	Delco	D	3	132	35x5	SS	2805	2805	2805	3650	4145	4145	.....
57	8-31x5 1/2	31.2	Delco	Own	Delco	D	3	132	35x5	SS	2805	2805	2805	3650	4145	4145	.....
CASE	6-31x5 1/2	29.4	Weths	Radd	Weths	D	3	125	35x4 1/2	SS	11875	11875	11875	2375	2375	2375	.....
U	6-31x5 1/2	29.4	Weths	Radd	Weths	D	3	125	35x4 1/2	SS	11875	11875	11875	2375	2375	2375	.....
CHALMERS	6-30	6-31x4 1/2	25.3	Remy	Stumg	Weths	DP	3	117	32x4	SS	1365	1365	1450	1625	1850	2025
6-30	6-31x4 1/2	25.3	Remy	Stumg	Weths	DP	3	117	32x4	SS	1365	1365	1450	1625	1850	2025	.....
CHANDLER	6-31x5	29.4	Bosch	Radd	Weths	DP	3	123	34x4	SS	11595	11675	1595	2195	2295	2805	.....
CHEVROLET	4-31x4 1/2	21.7	Remy	Zenith	A-Lite	C	3	102	30x3 1/2	C	660	665	665	1060	1060	1060	.....
490	4-31x4 1/2	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	935	1475	1475	1475	.....
FA	4-31x4 1/2	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	935	1475	1475	1475	.....
D	8-31x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	1385	2175	2175	2175	.....
COLE	9-31x4 1/2	39.2	Delco	Stumg	Delco	C	3	127	33x5	SS	2395	1995	2195	2495	2595	2795	.....
870	9-31x4 1/2	39.2	Delco	Stumg	Delco	C	3	127	33x5	SS	2395	1995	2195	2495	2595	2795	.....
COLUMBIA	6-31x4 1/2	25.3	A.Kent	Stumg	W. Land	DP	3	115	32x4	.....	11495	1350	1350	2395	2395	2395	.....
CAD	6-31x4 1/2	25.3	A.Kent	Stumg	W. Land	DP	3	115	32x4	.....	11495	1350	1350	2395	2395	2395	.....
COMET	6-31x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	.....	1285	1285	1285	2395	2395	2395	.....
COMMONWEALTH	4-31x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3 1/2	SS	1995	995	995	1285	1285	1285	.....
4-40	4-31x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3 1/2	SS	1995	995	995	1285	1285	1285	.....
CROW-ELKHART	4-31x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3 1/2	SS	1995	995	995	1285	1285	1285	.....
CE-36	4-31x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3 1/2	SS	1995	995	995	1285	1285	1285	.....
CUNNINGHAM	8-31x5	45.0	Delco	Stumg	West	D	3	132	35x5	.....	11495	1350	1350	2395	2395	2395	.....
8-31x5	45.0	Delco	Stumg	West	West	D	3	132	35x5	.....	11495	1350	1350	2395	2395	2395	.....
DANIELS	8-31x5	33.8	Weths	Zenith	Weths	D	3	127	34x4 1/2	QDR	3250	3250	3250	4350	4350	4350	.....
B	8-31x5	33.8	Weths	Zenith	Weths	D	3	127	34x4 1/2	QDR	3250	3250	3250	4350	4350	4350	.....
DAVIS	6-31x4 1/2	25.2	Delco	Stumg	Delco	C	3	119	34x4	.....	1485	1485	1485	1850	1850	1850	.....
H.I.K	6-31x4 1/2	25.2	Delco	Stumg	Delco	C	3	119	34x4	.....	1485	1485	1485	1850	1850	1850	.....
J.I.K	6-31x5 1/2	29.4	Delco	Stumg	Delco	C	3	125	34x4 1/2	.....	1785	1785	1785	2175	2175	2175	.....
DISPATCH	4-31x5	22.5	Bosch	Radd	U.S.L.	CU	4	120	36x3 1/2	QD	1150	1150	1150	1400	1400	1400	.....
DIXIE FLYER	4-31x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3 1/2	SS	1995	995	995	1285	1285	1285	.....
LYSS	4-31x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3 1/2	SS	1995	995	995	1285	1285	1285	.....

[illegible]

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Titan" Tillotson, "B & Ball" Ball & Ball, "Atz" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spldr" Splitorf, "QDR" Quick Detachable Reversible, "R & M" Robbins & Myers. NOTE— $37\frac{1}{2}\times\frac{5}{8}$ means that the rear tires are $37\frac{1}{2}\%$, and the front are smaller. Detachable top, 300x, means \$300 extra.

Hercules to Make Ford Tractor Engines

DEARBORN, MICH., Feb. 22—Henry Ford & Son have placed an order with the Hercules Motor Mfg. Co. of Canton, Ohio, for 65,000 Ford tractor engines. The motors are to be delivered at the rate of 100 per day when production reaches its normal output, and they are to be shipped to Cork, Ireland, where Henry Ford & Son have an assembly plant. Newspaper reports circulated to the effect that this order was placed by the Ford Motor Co. are incorrect.

Build Essex in Hudson Plant

DETROIT, Feb. 21—The Essex car, which will be produced by a concern headed by W. J. McAneeny, vice-president of the Hudson Motor Car Co., and composed largely of Hudson men, will be manufactured in the plant of the Hudson company. The car was to have been

built in the old Studebaker Plant No. 5, which was bought from that concern for the purpose, but owing to the demand for plants in this vicinity, due to war work, the plant was leased out. In the meantime the preliminary work of getting the Essex car into production is going forward at the Hudson plant. Nothing definite regarding the actual entrance of the Essex car into the commercial field nor any details of its specifications can be announced at the present time. It may be stated, however, that plans for going ahead with the production are being rapidly formulated, and the car itself in experimental form is being given extensive tests.

Mutual Plant Brings \$212,000

JACKSON, MICH., Feb. 22—The purchase of the Mutual Motors buildings by the Susquehanna Finance Corp. of Buffalo, N. Y., winds up the affairs of the

company which made the Marion-Handley, Marion, and Imperial automobiles. The sale of the plant for \$212,000 will enable the referees in bankruptcy to pay about 30 cents on the dollar on the outstanding obligations. The plant has an interesting history from the standpoint of the automobile industry and is one of the best known factory buildings in Jackson. It was known for many years as the Old Purifier plant, having been built in the eighties by Geo. Smith Mid-dling Purifier Co. The next occupant was the Imperial Wheel Co., which in turn sold the building to the Buick Motor Co. It was used for making Buick cars until the construction of the shops at Flint, after which it became the home of the Buick automobile racing crew. On the formation of the Imperial Automobile Co. the plant was taken over by them and finally sold to the Mutual Motors Co., which occupied it up to the time of their failure.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

So. Bethlehem, Pa...	Fourth Annual (cars trucks 25-27), Coliseum. Elliot, Mgr.	18-23; ...Feb. 18-2.	J. L.
Quincy, Ill.....	First Annual, Armory. Bartlett, Mgr.	L. B. ...Feb. 20-23	
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars, Trucks.	Feb. 23-Mar. 2	Mar. 5-9
Muskegon, Mich.....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2	
Indianapolis, Ind....	Seventeenth Annual, Indianapolis Automobile Trade Assn. Diamond Chain Works. John B. Orman, Mgr.	Feb. 25-Mar. 2	
Columbus, O.....	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2	
Burlington, Ia.....	Cars, trucks and accessories.	Feb. 27-Mar. 2	
Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6	
Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2	
Lyons, France.....	Third Sample Fair.	Mar. 1-15	
Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9	
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9	
Utica, N. Y.....	Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.	Mar. 4-9	
Clinton, Ia.....	Clinton Automobile Dealers' Ass'n, Coliseum.	Mar. 6-9	
Mason City, Ia.....	Annual Car and Truck, Automobile Dealers' Assn.	Mar. 6-9	
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9	
Watertown, N. Y....	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9	
Cedar Rapids, Ia....	Cedar Rapids Auto. Trade Assn., Auditorium.	Mar. 11-17	
Fargo, N. D.....	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15	
Raleigh, N. C.....	Auditorium. John Kelley, Mgr.	Mar. 13-16	
Peoria, Ill.....	Peoria Auto Accessories Dealers' Assn. W. O. Ireland, Mgr.	Mar. 13-16	
Warren, Pa.....	Warren Automobile Dealers' Assn., Rossell Garage.	Mar. 13-16	
Great Falls, Mont....	Montana Automobile Distributors' Assn., Lexington Garage, A. J. Breitenstein, Mgr.	Mar. 15-20	
Vancouver, B. C.....	Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.	Mar. 19-23	
Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luther, Mgr.	Mar. 20-22	
Holdrege, Neb.....	Second Annual of Southwest Nebraska.	Mar. 20-27	
Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23	
Bridgeport, Conn....	Sixth Annual Cars and Trucks. Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.	Mar. 25-30	
Rochester, N. Y.....	Tenth Annual, Rochester Automobile Trades Ass'n, Exposition Park. C. A. Simmons, Mgr.	Mar. 25-30	
Fort Fairfield, Me..	Reed's Garage. R. F. Reed, Mgr.	Mar. 27-29	
Atlantic City, N. J.	Second Annual, Garden Pier. W. W. Garabant, Mgr.	Mar. 30-Apr. 6	
Hartford, Conn.....	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6	
York, Pa.....	York Automobile Dealers' Assn., Queen St. Tabernacle.	Apr. 1-6	
Green Bay, Wis....	Brown County Automobile Trade Assn.	Apr. 6-8	
Red Bank, N. J....	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13	
Reading Pa.....	Reading Automobile Trade Assn.	Apr. 8-13	
Calumet, Mich.....	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-23	
Davis, Cal.....	Tractor Demonstrations, University of California.	Apr. 17-19	

Conventions

Detroit, Mich.....	World's Salesmanship Congress. Third Annual Session.	Apr. 24-27
Hot Springs, Va....	Convention National Association of Automobile Accessory Jobbers.	June 5-12

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 10

New York, March 6, 1918

Ten cents a copy
Two dollars a year

The Most Complete Survey of Tire Conditions Ever Made—Now Ready

The inside facts revealed by thousands of answers from dealers, distributors, motorists and others have been checked, compiled and charted in one big volume.

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powerful merchandising selling ideas are shown and explained in this great book.

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Dealers Who are Interested in Making a Miller Connection Should Send in Their Names Today Sure



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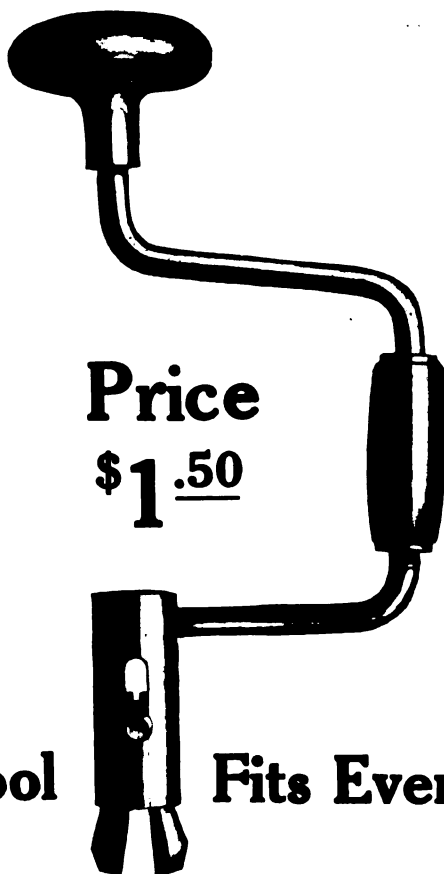
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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

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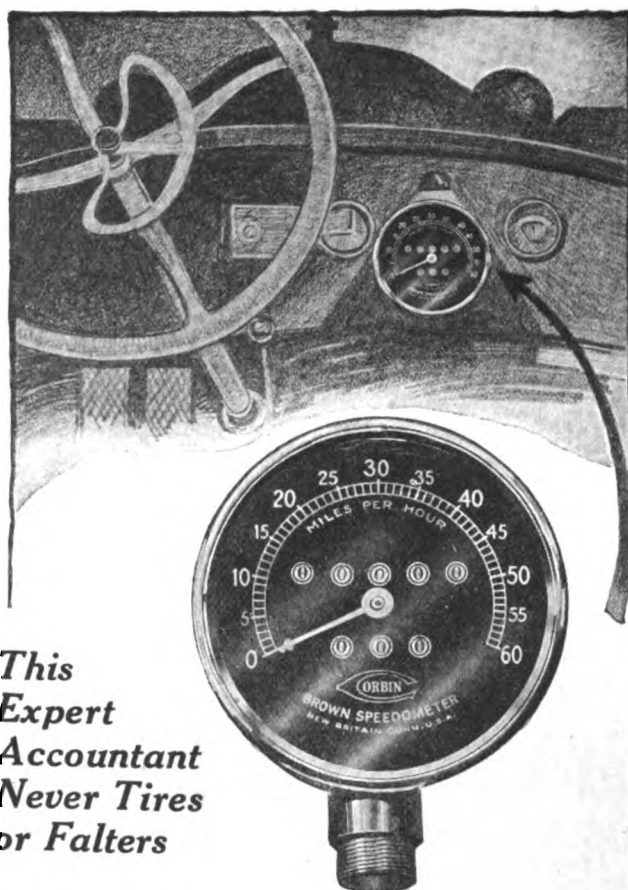
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Accountant
Never Tires
or Falters*

IT is one thing to obtain speedometer efficiency while the instrument is new and all the operating conditions favorable, and quite another matter to maintain flawless record under the widely varying influences of weather and day-in-and-day-out service. In order to *stay* right a speedometer must be right in principle, right in design, right in structural quality. These essentials are combined to the highest degree in the

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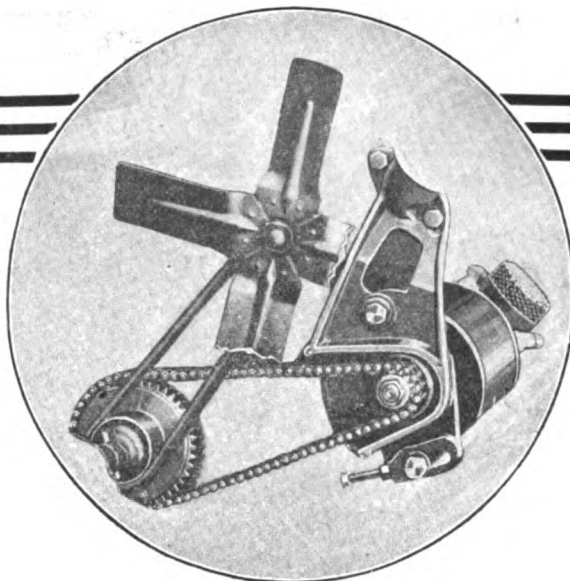
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for
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Vol. LIV

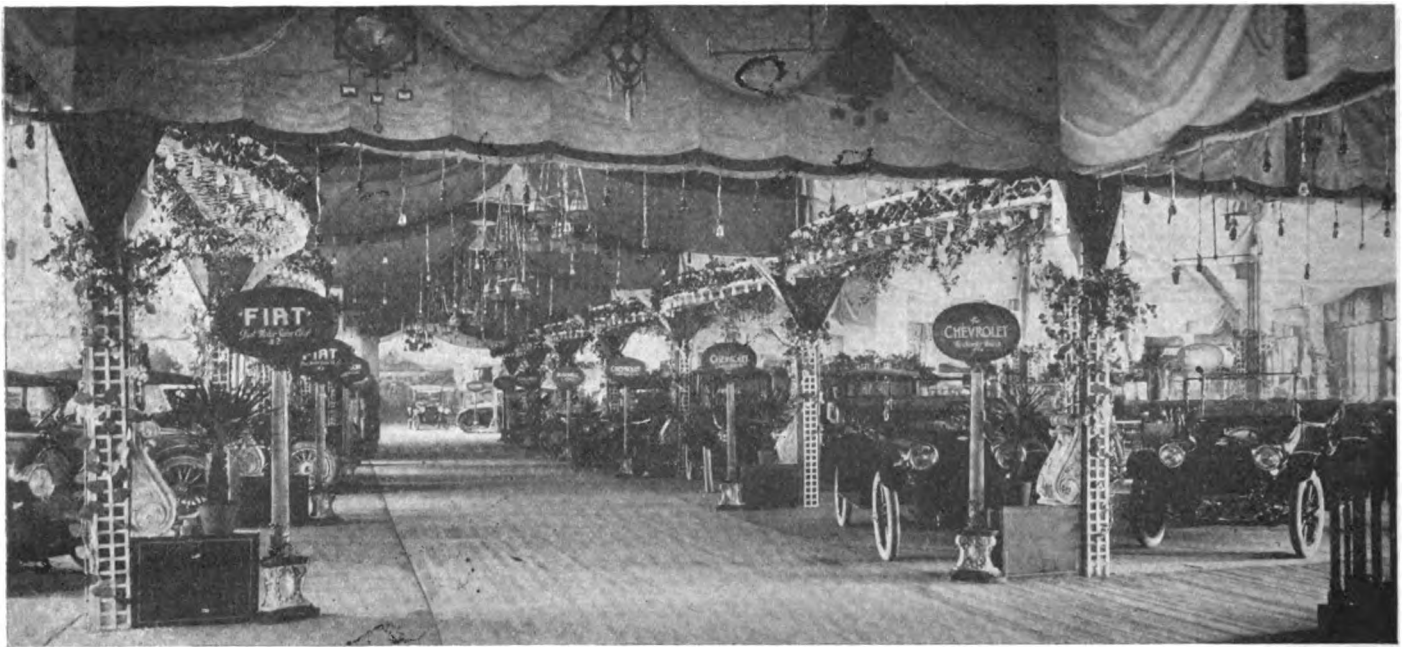
New York, U. S. A., Wednesday, March 6, 1918

No. 10

WRECKED!



Old Man Gloom is done for. The accurate marksmanship of the dealer-shows has smashed his pessimism and soon he will be no more. The Boston Show is the final slam



From the entrance one looked into a vista of trellised flowers and colored tungstens. This is probably the showiest show that Boston has had

BOSTON SHOW

Is the 1918 Exhibit Season's Final

Bat at Old Man Gloom

New England Exhibition Marks End of Successful Winter Season and Auspicious Opening of Summer Trade

By Ray W. Sherman

BOSTON, Mar. 2.—The Boston show is the last of a series of fine large bricks that the dealers of the country have heaved at Old Man Gloom, and the old boy is just about done for.

He had a good start in December, and he and all the little glooms were inwardly exulting at what was going to happen to the motor-car business, but the dealers, with their motor shows, have put backbones back where they used to be, and the clackers haven't much to clack about.

Business prospects here and everywhere look better now than they did three months ago. Confidence has been restored. The old spirit has been revived. Hoarded money has been turned back toward circulation, and the country generally will benefit.

The motor shows have done it.

And it is the dealer shows that did most to turn the trick. Of all the shows of the winter, the shows held by dealers have been the ones that got the old-time

crowds and that were most filled with the dash and spirit that yanks the public back to its feet and makes it feel that the old industry is still here and that the men who sell the cars are still on the job.

Advertising the Barometer

A bit of evidence: At the New York and Chicago shows the advertising in the special Sunday motor issues at the opening of the shows was from 40 to 60 per cent below the 1917 mark. Here it is only about 30 per cent off. In Minneapolis the Tribune got out the biggest show section it ever printed, so big that it reproduced it in booklet form. In Kansas City the papers ran close to last year, and some better. Elsewhere the advertising was good, with a few exceptions, but the exceptions were not at the bigger dealer shows.

Last fall some dealers believed the shows should not be held. In fact, one city in the West called off its show, and

to-day regrets it. But there was a majority that saw the dire consequences that might follow the stopping of the shows, and the majority prevailed. The result was that the whole dealer army determined to HOLD SHOWS and to make them successful.

Efforts were made to get the crowds. Money was spent in advertising. Co-operative advertising was used to stabilize the public mind and keep money in circulation, meetings of optimism were held, dealers from the territories surrounding the shows were lined up on a right 1918 foundation, and sunshine and spring will do the rest—plus a continued dealer effort.

Some of the concerted activity has been due to the machinery of the National Association of Automobile Show Managers, in which the men who manage the big dealer shows got together, exchanged opinions, talked over plans, and went home and set things awirl. Next year the benefits will be still greater, and busi-

ness will be still more benefited, for the ideas of this year have all summer and next fall in which to be expanded and whipped into shape for more extensive use. Some of the plans that developed this season had to be worked into shape in too short a time.

And so the show season has come through to a fine finish. Old Man Gloom was batted in town after town, and now Boston is putting on the finishing touch.

To-night, when the show opened, the old crowds were there in all their glory. They pushed and jammed at the gates, and every man in the jam was benefited by being jammed, because he was forcibly reminded that the show was a success.

Seasonable Decorations

The decorative effect is better than ever. E. W. Campbell, the decorator, has beaten his own records. The whole show radiates spring, which is fitting, for the Boston show comes at the beginning of the spring season, and is always a good buying show. The atmosphere helps.

More money than ever was spent this year in making the show successful. In store windows in New England 14,000 cards were used, 14 x 22 in..

Three-sheets were put up in 184 stations on the Boston & Maine, and more than 60 on the New York, New Haven & Hart-

ford. Over 100 one-sheets were used on the New Haven. Five hundred three-sheet banners were stretched on fences, barns, and walls, along all the railroads in New England.

For three months before the show general motor-car publicity was sent to 240 New England papers, many of which used it. Paid advertising on the show was carried in 60 papers. In the papers outside Boston, \$4,000 was spent, \$7,000 was expended in Boston, and in addition, \$10,000 was spent during the days preceding the show on a patriotic series of Americans versus The Enemy advertising that stimulated spirit and won the approval of the public.

The dealers feel grateful to the Champion Spark Plug Co. It covered New England with 24-sheets advertising its goods, but at the top was a big picture of Mechanics Building, where the show is held, with the message: "Visit the Boston Motor Show."

Advertising is still going on, and there is further planning to combat Old Man Gloom. Monday noon there is to be another of those optimism luncheons that have proved so beneficial in several cities this winter. E. Le Roy Pelletier is going to tell his wonderful story of why hoarding and excessive frugality stunt a nation and why a nation that spends is a nation

that has prosperity. Pelletier has made a deep study of economics here and in Europe. His story makes a man feel better. It makes a dealer a better dealer and a salesman a better salesman, and both better Americans.

John Mahoney, the show's publicity man, says he can always gage the show's success by the demand for free tickets, and this year he says the demand has been greater than ever before.

New England Trade Organization

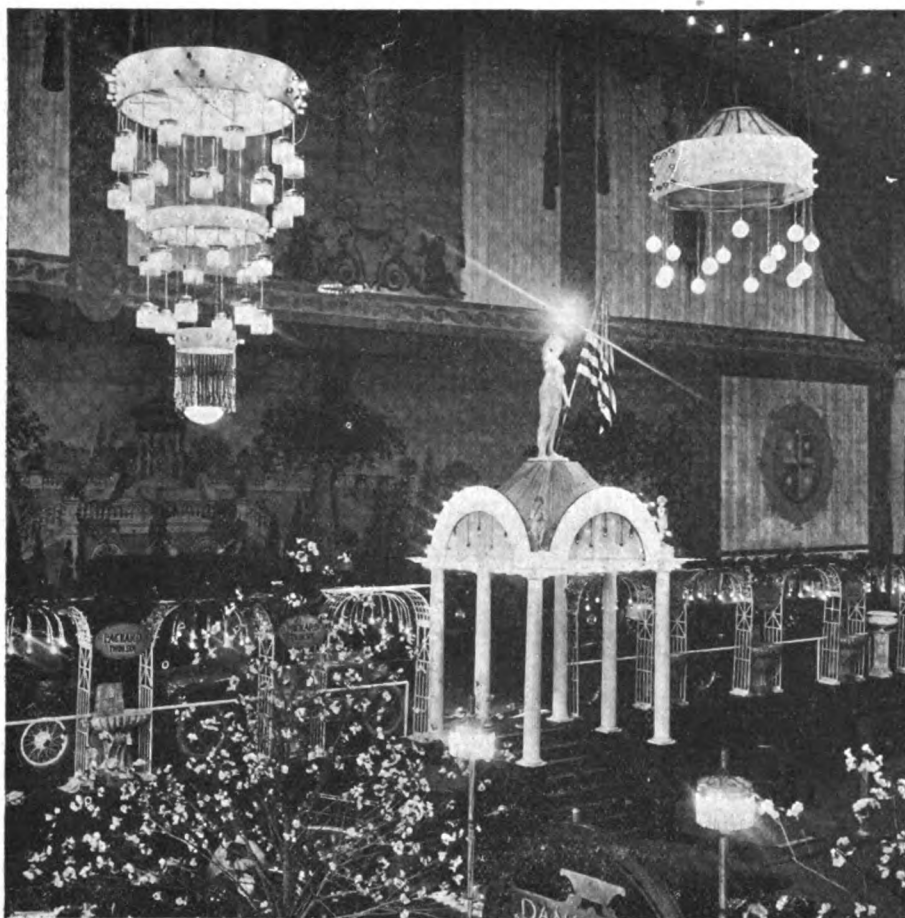
Last year's show drew 2800 dealers. This year 2600 actually have been listed, and the listed figure is always increased considerably, says Manager Chester I. Campbell, so the dealer attendance should be as big as ever, if not bigger.

The New England spirit is so alive this year that a movement for a New England motor trade organization is in progress. Charles Coe, the Chevrolet manager, is temporary chairman. Memberships are being taken, and a comprehensive organization of the trade is expected.

All this push and optimism are not without reason. The trade's leaders in New England see a good year ahead. True, there may not be as many cars as there were last year, but there will be some cars, and dealers who have been aggressive enough to get stocks, and



Grand Hall blossomed out as a peach orchard with the Goddess of Liberty atop a pagoda that served as the entrance to the stage where Packard and Cadillac held forth



And here is the Goddess of Liberty, who guarded the stage exhibit of Packard and Cadillac with a 300-watt Mazda lamp in one hand and an American flag in the other

those who make efforts to get cars during the coming weeks will make some money.

Furthermore, New England dealers who have handled cars only, and in some cases a truck, are digging into the tractor situation. A thousand were sold in New England last year, mostly Avery, Case and International, and every one is interested in this machine. The only question is: What size and price does New England want? Thus far the prices have been from \$400 to \$1,200, and the size one that will draw from one to three plows.

The territory has money. H. K. Noyes, the Buick distributor, who knows New England from the days when he was a wholesale grocer, and who was brought up on a New England farm, says business should be good.

Has More Money Than Ever

He says New England has more money than ever before. The winter has been severe, but sales loosened up about two weeks ago. Some of the mills in the great industrial sections have been hit by the coal situation, but even that is improving.

Factories are turning out goods, including a not inconsiderable quantity of munitions. The farmers are getting good prices, and are hit only by the shortage of labor, and this means more farm machinery.

In Aroostook County, Maine, which is

one of the world's greatest potato sections, tractors are being used. They are turning 100 acres in 10 days, and the machines are being used for all sorts of purposes.

In Maine, the lumber, pulp and paper businesses have been hit by a shortage of help, but aside from that business is good. Shipping has also hurt the Maine industries somewhat.

New Hampshire is generally prosperous. The mill towns are busy. Farmers need help, but get good prices. One man fruitlessly offered \$100 a month and keep for a man. Acres of timothy are said to have spoiled last year for want of men. But the demand is good, and prices are good, and with all the difficulties the farmers are getting money.

Lower New England—Massachusetts, Rhode Island and Connecticut—is busy and prosperous. The mills, the market gardens, the tobacco industry, and all the other activities, are producing wealth, all of which means business for the motor-car dealers who WILL TO GET IT.

Getting cars is going to be one of the problems. It is a big problem now. The roads through the Berkshires are in bad shape right now, and it is hard to drive. A few cars can be secured by freight when permits can be got from the railroad regulators.

One dealer said he was able to get

quite a few cars simply because the factory had a traffic man who was on the job. He watches the situation closely and slips along a load of cars every time he sees an opening.

Noyes, the Buick distributor, said freight from Flint is \$60, express is \$80, and there is little of either. To drive cars cost him from \$100 to \$120, and this does not include the body damage that must be repaired before the cars can be sold.

No matter whether customers are taken to the factory or the dealer's drivers go after the cars, the cost is high. Some of this can be added to the price, but it is often hard to add all of it. At that, it is better to sell a car at half profit than not to sell it at all. Of course, it is far better to get all the profit, and this is being done by some dealers by advertising cars not at factory list but at a list that covers the net plus all costs.

Now They Are Sorry

Distributors have been trying all winter to get dealers to take cars, but some of them have been filled with the "blue-funk stuff," and couldn't see any possibility of selling them. Now, some of these same dealers are pleading for cars, and there are none to be had.

One distributor, who covers nearly all of New England, is entitled to 7500 cars from June 1 to June 1. He has thus far had 3350. There remain three months to take 4150 cars, which is 50 cars a day, and for the distributor's 125 dealers is an average of less than a half car a day.

Even if this factory's output were cut 40 per cent, it leaves 1150 cars to be secured and retailed in three months, which is 15 cars a day. For the dealers it is only an average of a car every eight days, but this figure is fallacious, for the Boston retailing organization now has 300 cars in stock, and wants more.

It is stated that electric roads around Detroit are being used to ship cars for certain distances.

Dealers all talk of freight and express, but admit that there is absolutely only one way out—the driveway. Either that or nothing; and if there are no cars to sell there are no profits.

Both the lack of cars and the rise of the truck business have turned many dealers into this channel. New England farmers can use trucks. Many of them use 3 and 5-tonners. Some market gardeners 25 miles out of Boston have to start at 3 in the afternoon to make the next morning's market, and it is a hard trip for horses. With a truck two trips a day can be made. The mills, too, require big trucks for short-haul freight work.

Conservatives Are Now Progressives

Dealers who have not considered the tractor and the farm lighting system because they consider it a radical move, would be surprised at the supposedly conservative dealers who are looking into these things. The only reason one of New England's biggest distributors isn't handling a lighting system is that some

one beat him to the one he wanted. He is now looking further.

Others are looking into trenches; and factories, by the way, that are considered "exclusively car" are having thoughts these days that they don't say much about. At lunch this winter, in a Western city, a man pulled from his pocket a card, and said: "Here's a man with a tractor design. He wants some one to manufacture it."

"Gimme it," said the representative of an "exclusively car" company, and he eagerly noted the designer's name and address.

Every one admits that the dealer whose line includes a couple of cars, a truck, and a tractor is fortunate this year. The automotive man is the one with the best profit possibilities.

This week, at Keene, the Avery Co. is conducting a sales school for the representatives of the Brackett, Shaw & Lunt Co., gas engine people, who have the Avery for New England. Brackett, Shaw & Lunt have only a few dealers—about a dozen—but keep 12 or 15 traveling men out selling tractors and closing sales for dealers.

Avery Tractor Exhibited

There is an Avery in the show, and F. W. Woodman, a general agent for the Keene distributor, is kept busy passing out literature and asking questions. The exhibit consists of a Beeman garden tractor and an 8-16-hp. Avery.

Woodman says he sold a 5-10 Avery on a 16-acre farm where the farmer had 1260 fruit trees. The tractor harrowed, drew the spraying machine, hauled apples, and did many other things. It was kept busy, and gave the owner satisfaction.

One problem is rocky hillsides, but it is said tractors will do considerable of this work, although, of course, there are limits.

Avery makes a potato-grower's special, with treads to fit the work, the principal alteration being in the front wheels.

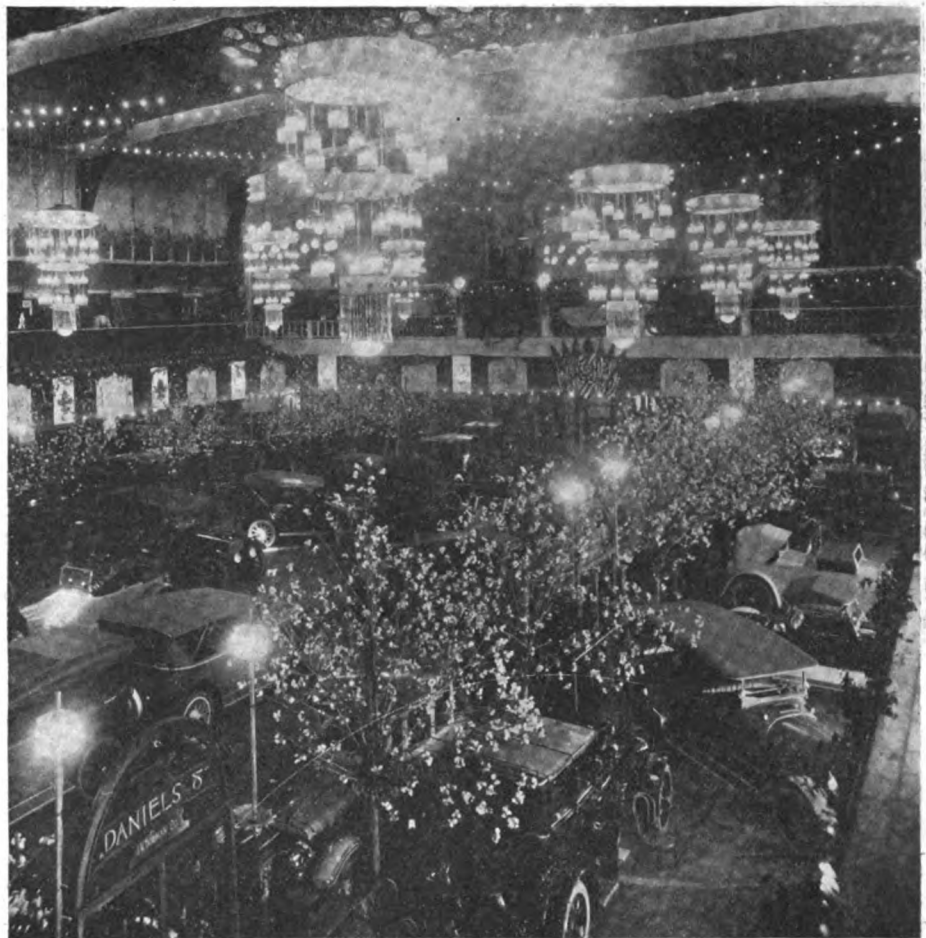
Farmers Looking for Tractors

It is the young men, says Woodman, who are buying the tractors. One young farmer unloaded his tractor, drove it home, and plowed 20 acres before the instructor could get there. The farmer had studied the catalog.

Young Farmers the Buyers

To illustrate again: Bruce I. Norton, representing the Brockway Motor Truck Co., Cortland, N. Y., owns a 150-acre farm at Spafford, N. Y., which is country much like that of New England. He is looking for a tractor.

He said: "Last year I put in 50 acres. This year I want to put in 75. I have two horses, which I shall keep because a farm can't be run without horses, at least a pair. With a tractor a man can plow 8 acres in 10 hours. Friday nights in the summer I can come in from the road, put on a searchlight and plow all night, and again up to midnight Saturday. My man can plow in the daytime. Not only will I get some exercise out of it, but I will be able to turn over 12 acres on



From the stage end of Grand Hall the peach orchard effect is striking and beautiful; but it is not the effect of a common peach orchard. The great gates between exhibits give a country estate impression that is very pleasing

a week-end visit to the farm. It is going to help solve the farm-help problem; and there are lots of things I can do with a little tractor."

These things only illustrate the possibilities. They are things dealers and farmers are asking about. The general attitude is favorable to the tractor all around. What is needed is a lot of information on the subject, and they're all after it.

Some one said that there are 400,000 acres of tillable land in New England that are not being worked. One of the reasons is lack of farm help, which can be partly met by the use of farm machinery.

A feature of the show this year is that it has the sanction of the Motor and Accessory Manufacturers' Association. This means that the goods of members of that organization can be displayed by the makers. Heretofore, many of these makers have had their wares in the show only insofar as they were shown by agents and jobbers. The names of manufacturers are noticeable this year because of their presence instead of absence, as heretofore.

Exhibits Good

The exhibits, on the whole, are good. Cars are not, as a rule, crowded in until the exhibits are ruined. There could, however, be a trifle more atmosphere injected by the use of rugs, furniture, etc.

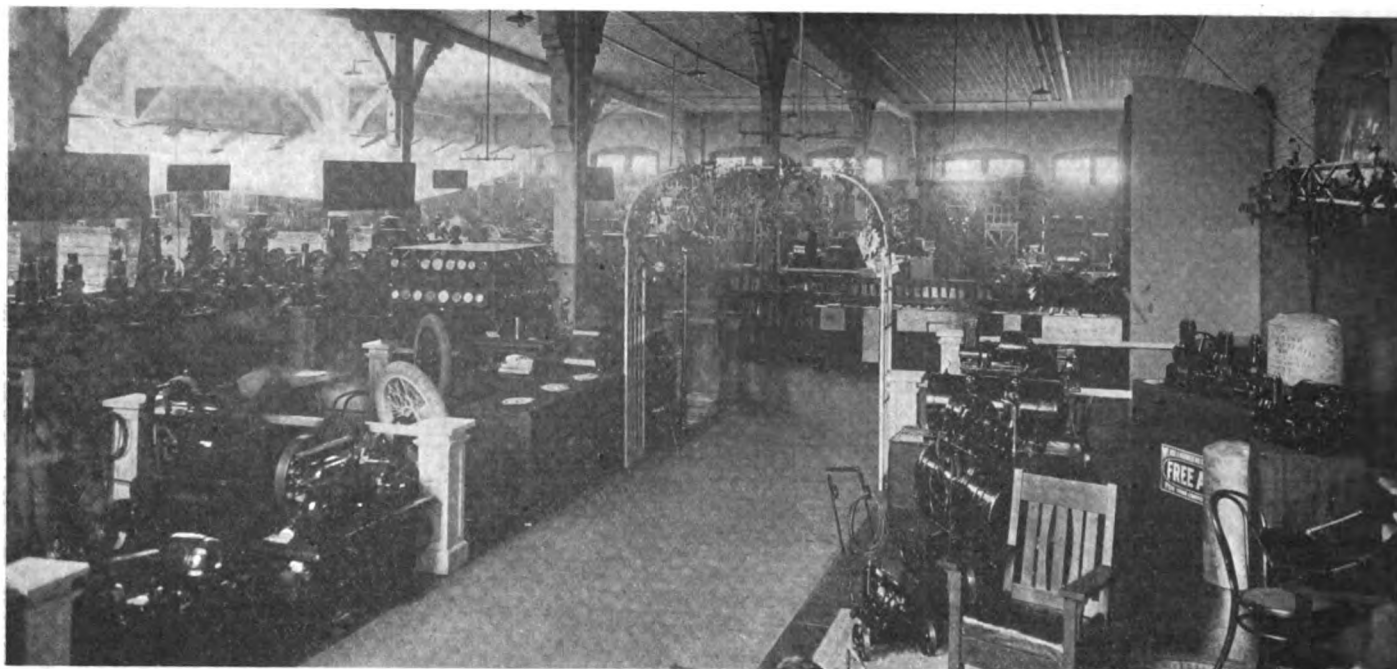
Hudson, Oakland, and several others, have good exhibits, and John H. Johnson, with the Buick, has his usual attractive layout.

A study of a number of shows suggests a display idea as regards getting the full benefit of lighting, especially in buildings with low ceilings. Wherever a high car, an enclosed type, or a touring car with the top up, is placed under a light all the light is on the roof of the car and the exhibit is robbed. A study of lighting effects, or consultation with the show decorator, might bring about beneficial results. Of course, in buildings of the auditorium or armory type the lighting situation is different, the lights being far above the cars.

Boston still has the distinction of being the only show to have its floor mopped every day. Manager Campbell has about 25 men who mop all the aisles between the close each night and the opening next morning. The Boston floor is still in a class by itself.

Its decorations, too, are fine. Grand Hall is Florentine. There are what Decorator E. W. Campbell says are "Florentine gates" between the exhibits, and peach blooms and other things give a real summery atmosphere. The pictures tell the decorative story better than words could.

(Boston Show Story is continued on the following pages)



The accessory exhibit is hard to photograph and do it justice because it is spread over a large area and is in several sections. That is why this view only shows a small portion of the exhibit

In New England Brighter Colors Continue to Grow in Popularity

*Even the Lowest-Priced Cars Are Selling Well in Special Coats of Paint—
Demand Is Increasing*

BOSTON, Mar. 2—That note of color which blossomed forth so prominently at the last Boston show is even more prominent at the present one. Staid, sedate Boston has departed still further from the somber colors that once

had all the call in New England. This year, according to dealers, will be a far better year for cars painted in special colors than was last year.

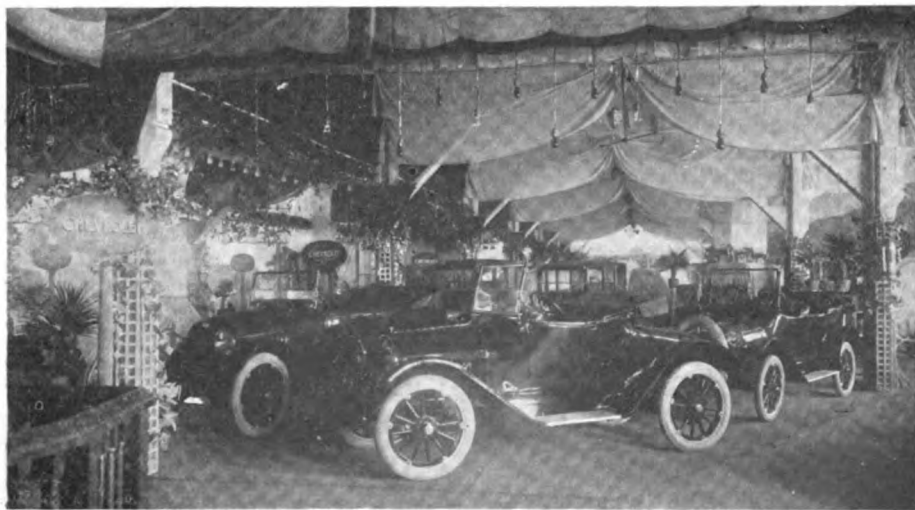
The greater number of specially painted cars, coupled with about half a

dozen new types of bodies that were not revealed at the New York and Chicago shows, constitute about all the real newness there is; but of course it is all new to Boston, and even those who have seen the previous big shows can get a sort of a thrill out of seeing again the cars that have already become familiar.

The Studebakers, for example, with their new straight lines, have been the center of great crowds since the doors opened. Perhaps the greatest crowd at any one exhibit is the one that makes it impossible to get near the Stanley steamers.

Chevrolet has its complete line right up at the door, and it is generally hard to wedge one's way past the exhibit. All in all, it is a bright, pretty show, and the lighter-colored cars and the special upholstery and fittings go a long way toward making the exhibition just a little different from the others.

About the newest thing, so far as Boston is concerned, is the Commonwealth, which is making its debut at the Hub under the sponsorship of the Carter-Crane Co. One model, a five-passenger car, done in a light shade of gray, and with an exceedingly well-fitting khaki



This year Chevrolet had the place of honor at the entrance. The exhibit was well arranged with plenty of room for visitors

top, is on view. This is the car that has the Partin-Palmer $3\frac{1}{2}$ x 5 engine. It is conventional in design throughout, and carries bumpers both front and rear by way of making the equipment fully complete. It sells for \$995 f.o.b. Rochelle, Ill., where it is made.

Among products of the old-line makers there is a particularly attractive Franklin—and Franklin, this year, by the way, shares air-cooled honors with the Holmes, which is exhibited for the first time at any show—which has a special body finished in bright canary yellow and is minus runningboards. There is only one door, at the right side, giving entrance to the tonneau. To get into the forward compartment one uses two broad steps and climbs over the side. The otherwise unusual feature of the body is that the sides are carried down past the frame and curved under, giving the appearance that the entire under side is enclosed. Black running gear and a victoria top give the car a decidedly distinguished appearance.

There is a special four-passenger, four-door Marmon sedan which is very evidently a custom job. One distinctive feature is the use of a leather visor over the windshield. It is held in place with snap buttons, and in addition to keeping the glass clear of rain and snow will also protect from glare. The idea is an elaboration of a similar idea which came to light on a Brewster body at the Astor salon in New York.

Two windshields on custom jobs are not altogether common, but the Locomobile company is exhibiting a touring model which is fitted with three. One is the usual shield for the driver, another is a one-piece tonneau shield which folds down behind the front seat, and the third is an ingeniously contrived folding shield which, when in place, comes quite close to the passengers on the rear seat. When not in use the shield folds compactly into what may be termed quarters—two to each side—and disappears entirely into an ordinarily concealed space between the body side and the upholstery. The body was designed and built by the Farnham-Nelson Co., Boston.



The Oakland space was well set off with a big rug and potted palm for a centerpiece

This car, like all the other Locomobiles, is painted a special color. Except in the case of some of the very lowest priced cars, in fact, there is scarcely an exhibit to be found that has not one or more special paint jobs. And even some of the low-priced cars are departing very radically from stock blacks and blues. Overland, Briscoe, Saxon, Allen—all have special paint jobs, and dealers state there is a brisk demand for them. The darker lake colors, such as maroon, dark gray, blue and green, are the most popular. They are conspicuously not stock colors, and yet they are not too conspicuous to attract undue attention.

Predict Big Demand for Special Colors

Dealers believe that 1918 is to be a better year for such special colors than any previous year, and they have two reasons for thinking so. One of them is that cars are getting so numerous that purchasers are getting more insistent for something different, something that will take them out of the common run. The other is that money is more plentiful, and buyers are, in consequence, more willing to pay the slight additional cost to get individuality.

In most cases, a charge of from 50 to \$95 is made for the option of a special

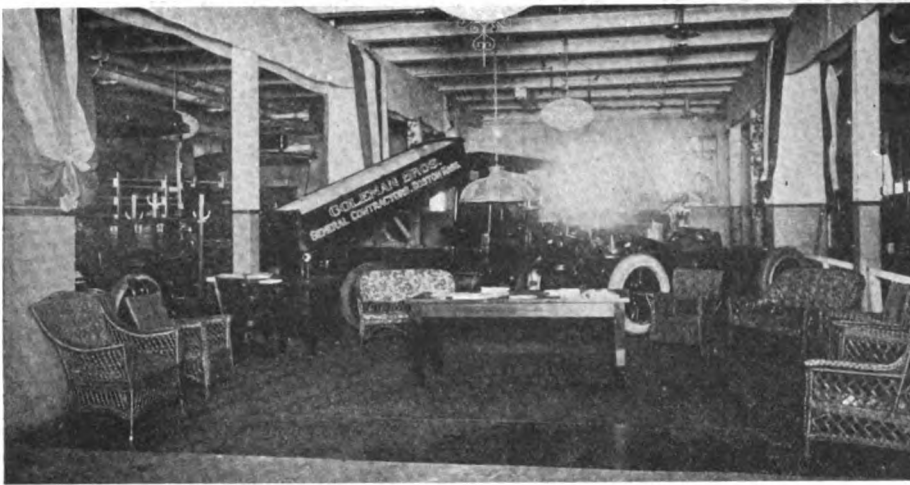
color, the lower figure generally meaning that the paint is put on at the factory, and the higher that it is done by some local painter. Dealers who are able to offer an option of several standard colors without extra cost have an advantage over others not so fortunately situated. The fact remains, however, that the New England motorist wants the brighter colors; he has the money to pay for them, if necessary, and is willing to pay.

A year or so ago dealers felt some hesitation about pushing cars painted in special colors and particularly those which departed radically from the standard darker shades. It was thought that purchasers would weary of them very quickly and that they would be thrown back on the dealers for resale. The year gone by has demonstrated, however, that no such trouble has developed. On the contrary, a number of dealers state that purchasers of specially painted cars have come back the second year and insisted on that degree of individuality which is imparted by a special coat of paint.

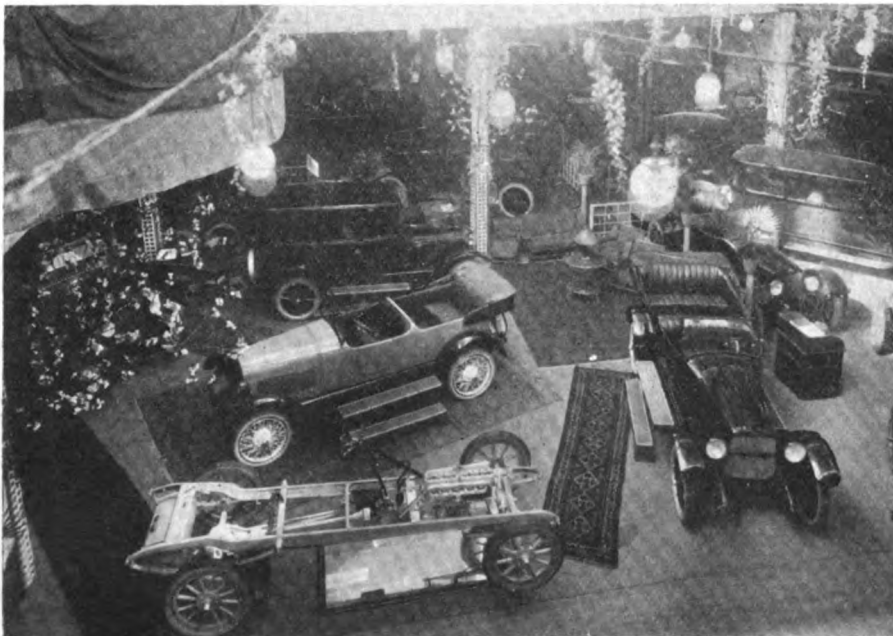
In many cases wire wheels alone are relied on to make a stock car different. Both disk wheels and steel wheels appeared in sufficient number to be noticeable and dealers believe they will be quite popular.



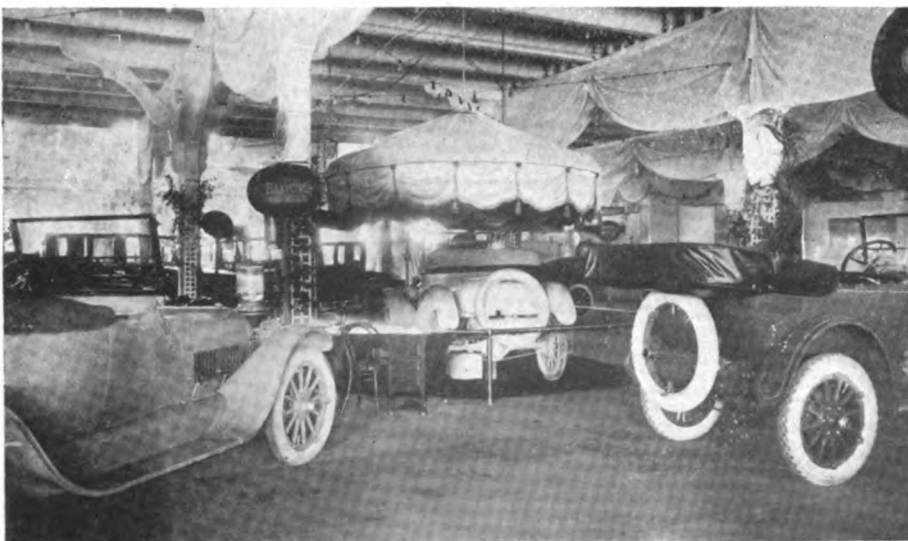
On Monday the Boston Automobile Dealers Association held a "pep" luncheon which was attended by everybody who is anybody in the trade. Alfred Reeves, general manager of the N. A. C. C., and LeRoy Pelletier were the speakers



Autocar made a real attempt at a merchandising exhibit. The space was quite a contrast to many of the others



Chandler, as usual, had an exceptionally well arranged exhibit space. This view, taken from above, shows how carelessly, yet carefully, the cars and properties have been placed



Johnson, Buick dealer, staged his usual theatrical display with a specially painted roadster on a turntable. The rails were always crowded

Boston's Biggest Res New England's T

MORE makes of motor trucks were exhibited this year in the basement of Mechanics Building than ever before, even including the last exclusive truck show of 1914, when the entire structure was given over to trucks.

This, Boston's biggest commercial vehicle exhibit, is an indication that the people of New England have come to realize the important part which motor trucks must play this spring and summer in the transportation of the hundreds of thousands of tons of freight which cannot be economically handled by the railroads because of the delays due to the acute railroad congestion. Boston's railroad situation is still bad, although slightly eased as compared with the conditions during the recent cold and snowy weather.

Since trucks must be used in the overland haulage of this freight, the present truck show offers a very convenient method of getting the various makes of commercial vehicles before the prospective purchasers. The New England truck dealers have realized this, and this in turn resulted in the largest exhibit ever held.

There were forty-five different makes shown, as compared with forty-one in 1914, thirty-nine makes last year and thirty-seven in 1916. Notwithstanding that there were more makes shown than ever before, the number of vehicles was less than last year—107 this year as compared with 121 in 1917.

The reason for this is that the trucks shown this year, on the average, are of larger capacity than ever before.

A great majority of the exhibits are of 3-ton capacity and over, thus indicating that the people are buying larger trucks such as may be used economically for overland or intercity hauls. This work holds forth the greatest promise for this year.

More trucks will probably go into freight haulage either between plants in the great industrial centers surrounding Boston, such as Lawrence, Lowell, Peabody, Brockton, Fall River, Providence, Worcester and Springfield, or between these cities and Boston, than in any other one class of work. Except in the State of Connecticut, this work has not progressed as rapidly as it should during the latter half of 1917 and the first two months of 1918, because none of the states except Connecticut has taken any steps whatever to keep the rural roads leading out of the large centers clear of snow.

Connecticut has done herself proud by rescinding her old laws making it incumbent upon the towns or counties to clear the roads of snow and has placed

t Truck Show of nsportation Needs

the entire responsibility and cost of the work upon the state.

This is the only manner in which clear through routes may be maintained, for the smaller road units, such as the townships and counties, have neither the organization nor the funds available for successfully carrying on the work.

In Connecticut the highway commissioner had spent over \$37,000 from the first snow up until Feb. 18 to clean about 1000 miles of road. This figures out at about \$37 a mile to keep the roads clear during the most severe winter we have had in the last decade.

In an ordinary winter it should cost less, yet this figure is a fair indication of what the other New England States must be ready to expend during the winter of 1918-1919 if the greatly increased number of trucks which will go into interplant or intercity haulage this year are to be able to continue their important work clear through the winter.

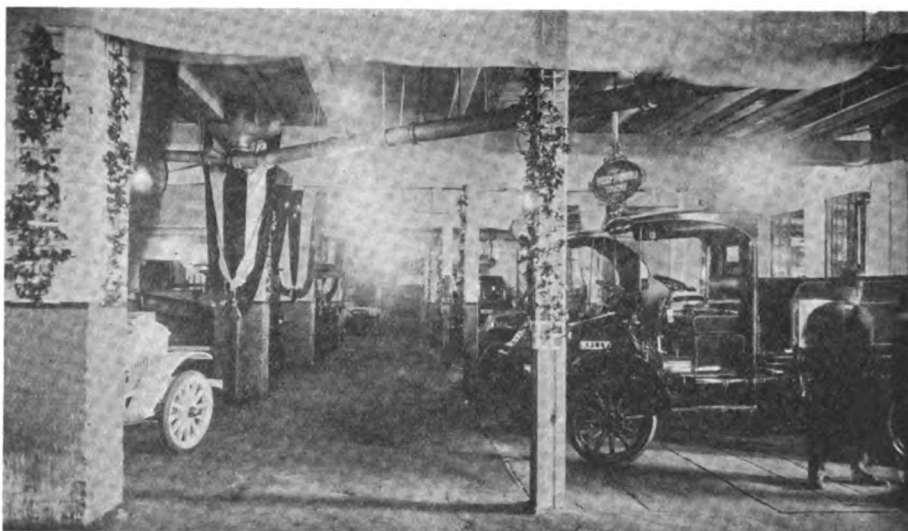
Massachusetts, with 26,964 trucks registered up to Jan. 1, 1918, has done nothing to enable these trucks, and the large number which will go into service this spring in the overland haulage business, to get return loads.

Connecticut, on the other hand, with only about 4000 trucks, has established the first statewide Return Loads Bureau organization, that has resulted in the movement of hundreds of thousands of tons of freight, much of it vitally needed war material, that would never have moved off the shipping platforms of the plants at which it was manufactured had not the roads been kept open during the winter and if the trucks hauling it had not been able to get return loads and thus cut the cost of haulage to a reasonable amount.

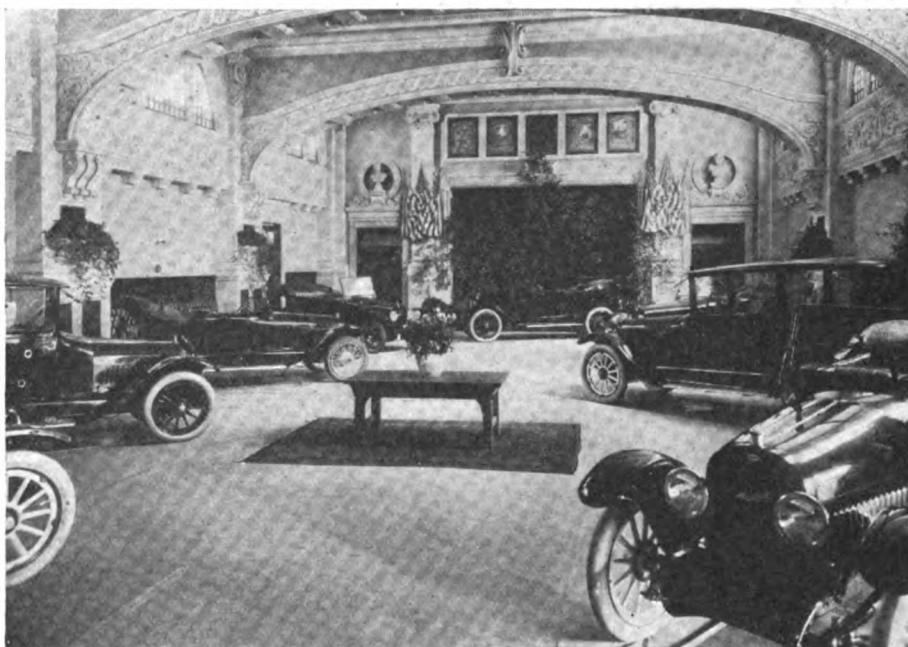
It must be remembered that it costs almost as much to run a motor truck light as it does loaded, so that if a truck has to return empty, the charge for the outgoing load must include the cost of the nonprofitable return if the truck owner is to make a fair profit. If the truck owner cannot make a profit, he will not run trucks.

These reasons demand that the State authorities help motor truck owners to get return loads if this means of transportation is to take its proper place, along with the railroads and the waterways, in winning the war. The general plan of the Connecticut Return Loads Bureau organization was described in Motor World Feb. 27.

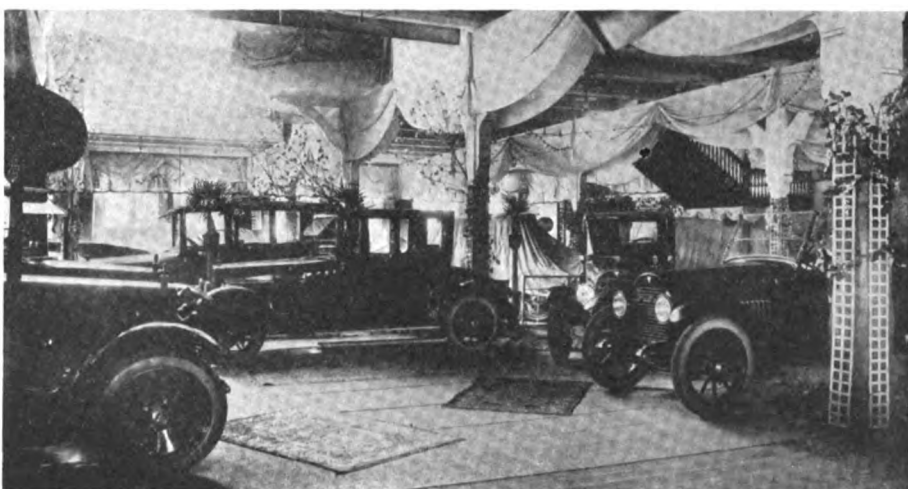
Boston, the hub of all New England, is differently situated in its railroad freight congestion in that its terminals
(Concluded on page 16)



As usual, commercial vehicles occupied all the basement of both buildings. This, of course, is only a small section of the exhibition



Mitchell, as usual, occupied Paul Revere Hall; the stage was converted into a forest scene which served as a background for an orchestra of girls



At the Hudson exhibit plenty of room was left for visitors to get in



View from the balcony, near the west end, looking toward the stage. The ceiling decoration is believed to be the largest American flag. It measures 185 by 118 ft. and was made especially for this show. The camouflaged walls and cloud effects over the stage were all done by local camoufleurs

Omaha, Too, Takes a Bat at Gloom

On the Opening Night 90,000 Crowded In and the Show Building Had to Be Cleared Three Times—Only Cars and Trucks Exhibited

By George R. Savin

OMAHA, NEB., March 4—Under the biggest American flag ever made, Omaha's thirteenth annual automobile show was held here last week, and it went big. It was not an automotive show, more's the pity!

Crammed into but little more space than has been available for the thirteen years during which these shows have been held here, it bulged, grew apoplectic, then frankly overflowed into near-by buildings, adjacent blocks, and even the streets. Yet it showed only passenger cars and trucks. There were no tractors, no accessories, no farm lighting systems—not in the building itself, but the woods were full of 'em.

And every line of automotive industry has reason to know that there was a show in Omaha this year. Every one of them got its goods somehow before the public. Not to the best advantage—still it was done, and each reaped a profit.

The City Auditorium, scene of many other shows, offered again this year the setting for this annual occasion. The building occupies half a block, and presents little more than a single floor of space. The basement is excavated only under the stage. The balcony is not used. In addition, there was rented for the show a floor of the new McCaffrey Motor Building adjoining, and on a total of hardly more than 50,000 sq. ft. of floor

space the show was presented. The excess over last year's space is negligible. The exhibitors numbered nearly 300.

Passenger cars and trucks were so jammed into the place that barely half a dozen exhibits could be seen to any advantage. Yet a really tremendous amount of business was done on the floor, while that accomplished on the outside almost passes the bounds of credulity. If the show had only been fittingly housed!

It had been planned to build an annex again this year across Fourteenth Street, as was done last year, this space to house the tractor exhibit. But "circumstances"—bugaboo of many a good project—pre-

vented. So there was no official tractor show. The trucks were shown in the small basement under the stage. Passenger cars occupied the auditorium floor and the McCaffrey Annex—occupied them to the utmost.

The people of this territory want to see the annual automobile show. They proved their interest on the opening day. Last year's attendance was estimated at 60,000. This year's was set at 90,000. But after the first day Manager Clarke Powell stated that the show could fall behind on every succeeding day and still come out ahead of the figure set. On the first night the house had to be cleared three times to permit the entrance of those who had not yet seen the inside. Succeeding days bore witness of what the show means in point of interest, for they never fell behind in attendance.

The visitors swarmed the auditorium full, and the immense overflow spread out to exhibits in the streets and across them and up and down Auto Row, twelve blocks long and six blocks away. Heads of Omaha automobile firms who at first settled down at their exhibits on the show floor were soon compelled to rush back to their own salesrooms, there to take charge of the flocking people who wanted to see and to buy. They turned the exhibits over to capable men on the floor and fled. They had work to do. It paid them.

Much might be said of the decoration scheme at the Auditorium. It was beautiful and timely. It surpassed anything of the kind ever attempted here. Patriotism was the keynote, and it registered strong.

More might be said of the disadvantage which resulted from the crowding which lack of space entailed. When you put five cars where two or three should be shown you do yourself no good. The trucks in the basement, for instance, were simply backed in cheek by jowl, and comprised a fine exhibit of sturdy radiators. The passenger cars on the main floor and in the annex were little better off. There were a few exceptions, but they were very few. Still, the show went over big.

The net results of the show as an

advertising proposition are conservatively estimated at nearly twice what it was last year.

There was uncertainty last year, they explain. We didn't know whether we were going to war or not. Now we are at war, and we know it.

Nebraska is one of the great producing States of the Union. Only nine States in the country produce more foodstuffs than they consume, and Nebraska is one of the nine. Moreover, Nebraska is the fifth largest producer of the thirteen staple foodstuffs crops by totals, and at the same time stands first in per capita production. No State in the Union excels Nebraska in the surplus of foodstuffs produced, figuring by volume, not by value alone.

Nebraska was the second largest wheat-producing State in 1916, the third largest corn-producing State, and was fifth in oats production. Last year's wheat crop was somewhat shorter because of winter freezing, but that was a very rare exception. Other crops were enormous. The farm value of Nebraska's agricultural products last year was far more than the nine-month value of all the bituminous coal mined in the United States in that year.

Has Many Big Farms

Yet the State is not thickly settled. It is only moderately so in the eastern part. Its area is 77,520 square miles. Its population is about 1,277,000. There are big farms in the State—lots of them. There are long distances to travel. There are 225,000 acres under irrigation. It is a land of big endeavor, yet of relatively few men and beasts of draft or of burden. The automobile is the logical solution of its problem.

The city is, of all the Union, first in butter production, first in lead-ore reduction, the second live-stock market, the third agricultural implement center, the fourth primary grain market. The city subscribed \$9,083,000 to the first Liberty Loan, \$11,388,500 to the second. The city's second Liberty Loan subscriptions alone amounted to a \$50 bond for every man, woman and child among its inhabitants, or \$275 per family. The State at

large subscribed on the second loan an average of \$116 per family.

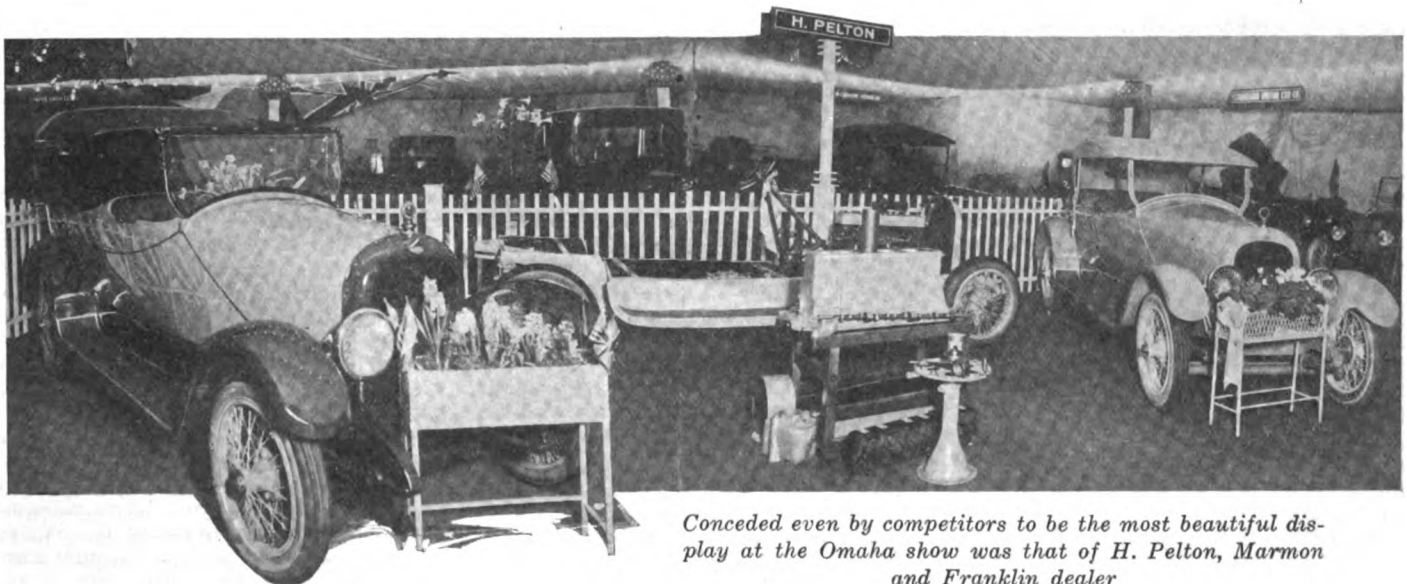
But to return to the farms and the distances. Twenty thousand of Nebraska's young men have gone to war. Her horses have fed the market for service overseas. Their numbers are relatively low. Truck and tractor are the logical solution of the problems of the farmer.

The Platte Valley lies, a great belt, across the entire length of the State. It is wide and low. It is richly productive. So also are the big valleys of the Elkhorn, the Loup, and the Blue. A thin, tough crust of sod overlies the muck, 4 ft on the average, to water. Cultivation and transportation in these valleys are largely jobs for the tractor and the truck, and the caterpillar tractor figures largely here. Of the uplands, the north-western and western parts of the State are largely high tablelands, great for potatoes and wheat, but not so strong for hay, although the wild-grass ranges produce immense herds of cattle and sheep.

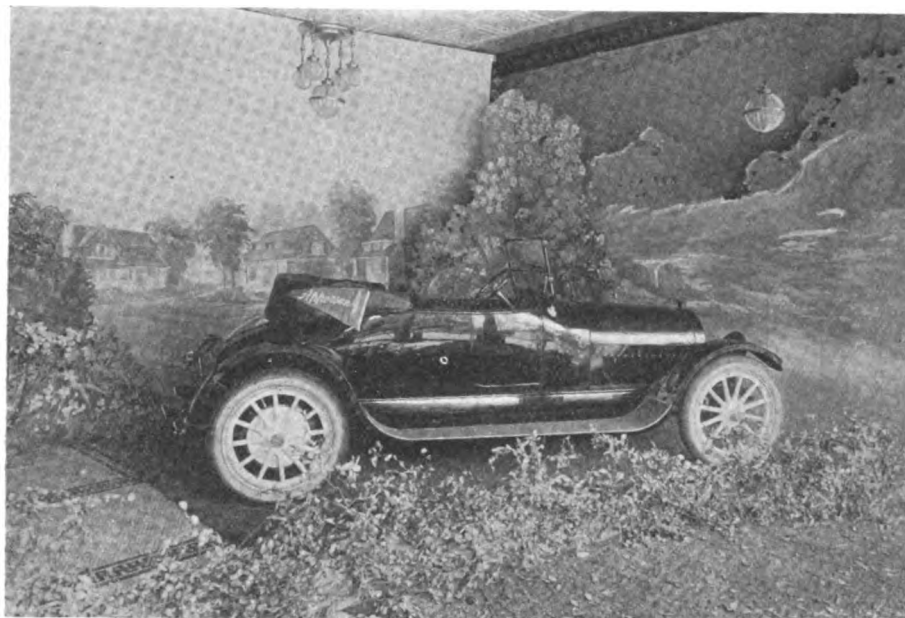
The State has 108,140 farms of 100 acres or over. At the close of 1917 it had but 3293 tractors. Truck statistics are not available, but the field is correspondingly large. Probably one-half of the tractors now owned in the State were sold during 1917. This year, by all the reckoning of the dealers and distributors, trucks and tractors will see a tremendous impetus in both these lines.

One distributor who was called upon the other day was just signing up with a dealer for fifty trucks. He had signed a similar contract the day before, and had two more such orders lined up for the week-end. He said he had dug up 300 good prospects since the automobile show had started. Another distributor exhibited a contract for 100 trucks, and volunteered to have another for fifty trucks to show the same day; and the cash was paid down for a good percentage of the cost price. They mean business.

Labor will be higher than ever this year, the whole State knows, and the truck and tractor will therefore come into their own with a vengeance in Nebraska. Feed costs likewise have mounted, with the same result.



Conceded even by competitors to be the most beautiful display at the Omaha show was that of H. Pelton, Marmon and Franklin dealer



A little ingenuity, a few ordinary stage fixtures borrowed from a local theater, an hour's work, and the Apperson Motor Co. had a display in its salesrooms which drew hundreds of people in from the street who might otherwise have passed on. It evoked much gratifying comment, not to mention sales

So much for trucks and tractors.

"Besides the car you handle, what kind of cars will be bought in Nebraska this year, if any?" is the question put to every dealer and distributor who could be reached. These men believe in their own lines, so you have to subvert them.

"They'll buy every kind of car on the market," was the unanimous reply, "and holler for more. It's all a problem of getting the cars to them." There was never more money in the State than there is now. And every man jack will buy now whatever car he can afford. He won't wait until he can get a bigger or better one. It isn't the nature of Nebraskans.

"We have got past the stage of first

getting the order then getting the car. We are buying the cars and then selling them. Our money isn't tied up long. The biggest trouble is transportation. We are far from the factories, and traffic is hard both ways. On trucks and tractors it is easier, because these, as agricultural implements, have the advantage of preference in traffic over passenger cars. But give us cars! We'll sell 'em!"

Except in the matter of space, there were no special problems confronting the staging of Omaha's thirteenth annual automobile show. The war tax was taken care of in the admission charge, which was advanced to cover this. Re-

ceipts from this source, according to Powell, were figured merely to cover the cost of putting on the show, but extraordinary attendance will probably show some profit. This, however, is never a factor in the show here.

As for next year, the show will be held as usual, beyond doubt. But a strenuous effort will be made to have a show in which there will be space for an automotive show, in which respect Omaha cheerfully doffs its hat to the Twin Cities. It is recognized that accessories should be shown as well as tractors, for the business done by accessory houses here during this show is criterion enough of the importance of this business in the territory. The entire basement of the Auditorium may be excavated, which would nearly double the available space. Or it may be considered essential to follow the example of Kansas City and build a temporary structure to house the show.

In any case, certain it is that an early start will be made on next year's show to make it one worthy of Omaha and of Nebraska. Two big tire factories are about to begin construction here, and while these buildings are away from the center of the business district, it ought not to be worse for Omaha to get the crowds to them than it was for the Twin Cities or Kansas City.

Difficulties in the way of the Omaha show were not because of feeling on the part of dealers and distributors that it was unnecessary or unwarranted. But in all kindness it may be said that there could be a bigger spirit in Omaha—one which would grandly surmount the difficulties which any such undertaking involves, which would not hesitate to spend a few extra thousands of dollars to put on a complete show of wide spaces and big ideas—a show which would stand among the shows of the Union where Omaha and Nebraska stand among the cities and states of America.

Boston's Biggest Truck Show

(Continued from page 13)

have not been congested as in New York, but the two great gateways into the territory have been clogged and have prevented the loaded freight cars coming in or the empty ones going out.

Three out of every five loaded freight cars which enter Boston go out empty for the reason that the raw material such as wool, leather, pig iron, cotton, etc., occupy less space in their manufactured forms.

The two main gateways into New England, at Harlem River for the New Haven railroad and its tributaries, and Albany and Mechanicsville and Rotterdam, N. Y., the entering points respectively for the New York Central lines and the Boston and Main systems, have been clogged by the congestion in New York City in much the same manner as water backs up behind a dam.

To offset this congestion there are many motor truck lines now in prospect

between Boston, Worcester, Springfield and Albany and Schenectady over what is known as the northern route as compared with the southern route through Providence, New London, New York, Philadelphia and Pittsburgh to points west.

This northern route has been clogged all winter, and even truck makers shipping new trucks from central western points have been forced to take the southern route, which is almost 200 miles longer. During 1918, Massachusetts must see that this northern route is kept open if the full fruits of the overland haulage service which only trucks can render is to be made use of as one of the ways in which our transportation can be kept at its maximum efficiency to win the war. Connecticut has kept her roads open, so have Pennsylvania, Ohio and Michigan for the many thousands of government war trucks of all kinds, and it is entirely possible that Massachusetts can

keep her northern route open. All it needs is organization and funds.

The New England territory offers a wonderful field for the use of motor trucks during 1918 if the roads are maintained sufficiently well to handle the increased truck traffic, if the snows are cleared under state supervision and if steps are taken to make the truck service most efficient by some sort of Return Loads Bureau organization.

New England always has been a good truck field, yet 1918 promises to outdistance all previous years. During 1917 trucks in the five New England States for which figures are available increased 58 per cent on the average.

This was less than in 1916, and was the result of not meeting the new all-year-round haulage conditions which the war has brought us to realize are necessary. It is a great waste if trucks have to be laid up during the winter months.

"THE old cuss doesn't seem to want to come through with an order," lamented Hughie to Tommy Trumbull, sales manager for Cornelius J. Reilly, Inc. Hughie had been trying for several weeks to get a Sennett sedan into the hands of the manager of Callawassa's big furniture factory, but each time the order slipped through the salesman's fingers.

"What's the matter?" asked Tommy. "Doesn't he like the car?"

"He says he does," parried Hughie, "but they all say that and then give some excuse for not buying. This time he says he isn't going to buy any car until a little later."

"What'll we do with this furniture man?" asked Tommy of Reilly, who still took an active interest in things despite the fact that he had a sales manager who really managed.

"No, I Forgot"

"Shoot him, I guess," laughed Reilly. "Have you tried that, Hughie?"

Hughie laughed.

"Did you tell him all about those windows that go up and down simply by turning a little crank?" Reilly asked.

"No—I forgot that."

"Did you tell him about the headlights that tip over backward so he can use them to light the road behind and to light the motor when he wants to look at it at night?"

"N-n-no," said Hughie, "I guess I forgot that too."

"Revise your canvass, Hughie. Make a fresh start. You'll get him."

So Hughie wandered over to his desk and looked thoughtful.

"Just one more case of the salesman not giving the goods a chance," declared Reilly to Tommy. "He doesn't use all his sales ammunition. He is making his own way hard."

"Yes," said Tommy, as a leader.

"Here our engineers and sales department go to work and gather all sorts of information on what makes cars salable. They work nights trying to figure out things that will make the cars appeal to buyers. They try out all sorts of window lifters and finally select one that enables even a child to slide a sedan window up and down. It is one of the nicest points about sedan construction in our price class this year.

The Designer's Dream

"I suppose the engineers and the sales department had a vision of buyers working this handle and sliding the windows up and down and signing an order forthwith. But what happens? This highly important Sennett sales point is cast into the discard by Hughie. A reserve soldier is standing there waiting to help him and he never even calls on him. Hughie declares he is licked when he hasn't even made a good fight.

"And here's this headlight thing. It was put there because it is a darned good sales point. We've had it up a dozen times in sales meetings. We have tried to drill it into the minds of the boys until they would believe we had the best car in the world, but Hughie goes up

Give the Goods a Chance

By Ray W. Sherman



against a prospect and overlooks the thing entirely. It is one more soldier of salesmanship that stands ready to help Hughie but who is never called upon to fight.

"I'm afraid it's this way with a great many different kinds of goods. There isn't an article on any market that hasn't incorporated in its sales points that were put there by the makers because they believed the points would help sell the goods.

"Take, for instance, this finger nail clipper that I bought in a drug store. I pawed over a basket full of them and picked this one out. The salesman never said a word. After I got it I cursed the thing for months before I found that it had a sales point I never knew about. It seemed to require an unusual pressure to make the thing clip and I squeezed and cussed for a long time, until one day I accidentally discovered that merely pushing in one end provided a fulcrum for the cutting lever that would make it almost cut wire nails. And then I lost it, and to this day I haven't been able to find another, and neither have I been able to find a salesman who knows anything about nail clippers.

"Take piston rings. I had a salesman talk piston rings until he was black in the face, but I didn't give him an order because I knew all the time he was passing up some of his best sales points. I happen to know his rings are good so later I bought some from Ben Doyno. I bought them because of what the sales-

man didn't say—not on account of what he said.

"Our factory puts out all kinds of literature—and so does every other manufacturer—telling about all these things. Accessories have literature that tells why things are made in a certain way and explaining the principles that underlie certain forms of construction.

"The good designer and engineer has in mind first the people who are going to buy the goods. He ascertains first a result that is desired and then makes his goods produce that result, and then many salesmen go out and try to sell the goods first and the results second instead of selling the results first and the goods merely as a means for giving the prospect the results.

"No man is interested in a piece of glass and a piece of bent metal—which is all our window and crank are—but he is interested in the small amount of work and the great amount of convenience there is in a window that can be moved with ease and rapidity. This ease and convenience are what we must sell him and not the crank.

"I don't believe salesmen spend enough time studying their goods. I believe a lot of the money that is spent in producing literature by manufacturers is partly wasted, merely because it isn't used as it should be. I don't see how a salesman can expect maximum results for himself unless he uses all these points of salesmanship that manufacturers and selling organizations have created and lined up for him to use."

Winter Business

And
Now
for
Spring

Clean Up! Dress Up! Paint Up!

YOU have been hard at work all winter. The shop has been busy, but there have been not so many cars passing your doors or stopping for gas, oil and accessories as there will be soon. Perhaps it hasn't seemed so necessary to look clean and ship-shape because there were few to look on. And so you got careless and the old place—look at it!—has gradually gathered dirt and grease and rubbish.

Spring is coming soon. Fresh grass, fresh leaves, fresh air, and before you know it your hands will be full. Everybody will be out of doors. Tourists will be going by in droves, and if your place is dingy, dirty, unkempt, that is just what they will do—go by!

People want bright, new, clean things in the spring. Give them what they want. Get ready for them.

It isn't enough to dress up. Spotless cleanliness is absolutely necessary.

Clean up! From the ground up. From the inside out. Then throw away the dead wood. Get rid of the scrap heap and give yourself room to see the next step.

Then—when you are satisfied that no grease, no rubbish, no dust remain—go in for the dressing up process.

The first thing a customer sees is your store front. It probably needs at least a touch of paint. Paint it all. Don't be afraid of the cost. It's the best advertisement you can have.

Look to your entrances, your show windows, all the outside details that attract the eye. The first impression is often the one that lasts. See that it is good.

Your signs should be bright and new—sparkling in the new sunshine. You can't beckon with a grimy finger.

Dress up the show room. Take out and rearrange every piece of merchandise and every stick of furniture. The mere change of position is a relief after months of sameness. Besides, a change may suggest a needed improvement.

Make your show room, your office, your rest room—every room where a customer may be—a little more attractive than might be expected. Flowers and plants cost little and mean much. Get some and keep them fresh and well tended.

Cover the bare spots with grass.

These are some of the things to do now. Do them and see what others suggest themselves. Start to-day!

Prepare for
Spring Service

Here Is How
Finch Does It

Editor Motor World: Inclosed find picture of our service truck and would like to publish it in the Motor World. We have found that a service car is one of the many things that go to make a garage up to date. Our motto is "Finch Auto Co. means Service."—Finch Auto Co., Clinton, Iowa.



Making Winter Boost the Tractor

Not Even Snow Prevented This Demonstration

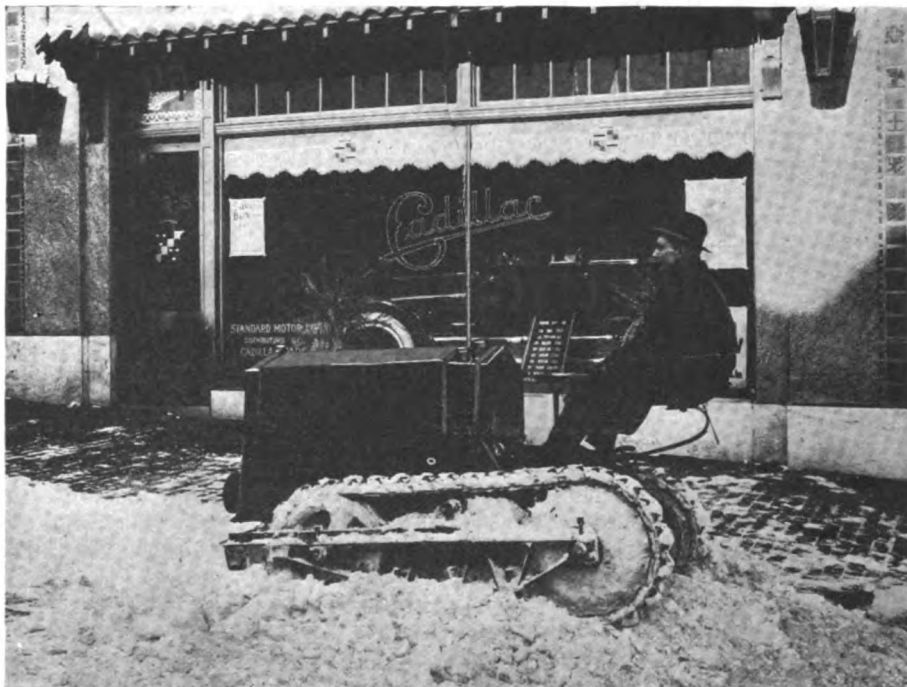
DEMONSTRATING a tractor on the streets and obtaining 141 real prospects in about 5 hours was successfully engineered in Baltimore by F. S. Bliven, manager of the Standard Motor Car Co., with a Cleveland tractor. Bliven, besides handling the Cadillac for the state, showed the local dealers how to make money on his used cars a few months ago by taking on the Knox tractor and is now selling used cars, new cars and a tractor.

Baltimore, like the other cities of the country, especially the East, was furnished with the finest collection of snowstorms that have been in this section for more than a score of years. On one of the days 1200 dairymen attended a conference at Odd Fellows Temple to obtain a raise in the price of milk.

Bliven sent his tractor with a demonstrator and two salesmen to the railroad station where most of the farmers arrived from Western Maryland. Then he sent it to the other railroad station where the Eastern Shore farmers arrived. As the farmers came out of the stations they were treated to the sight of the tractor crawling at a good clip over the great piles of snow. No attempt was made to do any selling around the stations.

Then the tractor was driven to the Odd Fellows Temple, Cathedral and Saratoga Streets, where there is a steep grade. Just a few moments before adjournment was made announcement was made that there would be a tractor demonstration in front of the building.

The sidewalks were lined with the interested men from the country section and they watched for more than an hour with the thermometer hovering just 10 degrees above, as the tractor was driven into the highest banks of snow, some of which were as high as the big wheels. Farmers jumped into the snow and made close examination of the powerful tractor.



Bliven took advantage of the snowstorms in Baltimore to demonstrate to 1200 farmers the efficiency of the Knox tractor

Strange to say, it was not necessary for the salesmen to ask the names of the farmers. They volunteered and came forward and asked that they be sent literature and arranged dates for demonstrations at their farms. Aside from the interest created for the farmers the moving of the tractor through the streets also brought mention in the local newspapers. This brought mail prospects from Baltimoreans and Marylanders who were not on hand to see the demonstration.

"I happened to pick up the morning paper," said Mr. Bliven, "and noticed that 1200 farmers would be in the city

to attend a convention. The tractor was here and I had the salesmen so I sent for the demonstrator and told him to get the machine ready to go downtown. Some comment was made by the men, but the salesmen soon grasped the opportunity and from all standpoints I think it was by far one of the best things I have ever done.

It would not surprise me to see double the number of prospects come in as the result of the one day's demonstration in the city streets. The snow and the convention gave me a big opportunity to let the people of the state know about the tractor."

The Best o' Luck

EVER since Oct. 10 the Winter Business Campaign has been on.

Week by week Motor World has printed the best ideas, the most successful business-getting plans of wideawake dealers, garagemen and repairmen, and has added suggestions of its own which experience has proved to be good.

Results have shown that the business was there. The men that went after it got it.

Were you one of them?

If you were, the same force, push and initiative

that spelled success then will follow you through the spring and the summer—if you keep it up!

Winter is over now. Spring business is waiting for you. It will come all the more easily for your winter's work. But don't wait for it to come to you. Go and get it.

Winter Business then rings down the curtain. Another successful season is passed. In the language of our brave Ally, on whose soil our boys are fighting for us, we bid you *au revoir* until next fall.

And the best of good luck to you!

A Department of
BETTER MECHANICS
No. 59

Electrical Testing Equipment

For Use with Overland Cars

TO furnish up-to-the-minute electrical service to the several thousand Overland and Willys-Knight automobiles in Boston and vicinity, the Connell & McKone Co., Overland distributor, has established a complete electrical department in its new service station.

In the electrical department, which occupies a space of 60 ft. by 20 ft. on the first floor, close attention has been paid to the disposition of the test benches and apparatus so as to provide the maximum in speed and efficiency for the repair of the electrical equipment on cars in need of this

service. The department is prepared to care for all starting, lighting, ignition and battery work on all models of Overland and Willys-Knight cars, though many of the ideas in this article can be used in electrical work on any car.

The shop work is divided into three classes: (1) Starting motors and generators, (2) Storage Batteries, and (3) Magnetos and Ignition Systems. In nearly every case the equipment has been made by the shop so as to be especially adaptable for the work.

GENERATOR REPAIR EQUIPMENT

UPON being brought to the department, generators are taken to the tear-down bench and disassembled. The parts are all thoroughly washed in gasoline and wiped clean. The armatures are taken to the armature repair bench. This bench is provided with several jigs for holding the armatures while they are

being worked on. Two styles of these jigs used are shown. The adjustable jig will accommodate all types of armatures, even those with the long shaft extension used in connection with the Bendix type of starting motor drive.

The first test is for grounds in the armature winding or commutator. A 40-volt direct current circuit and also a

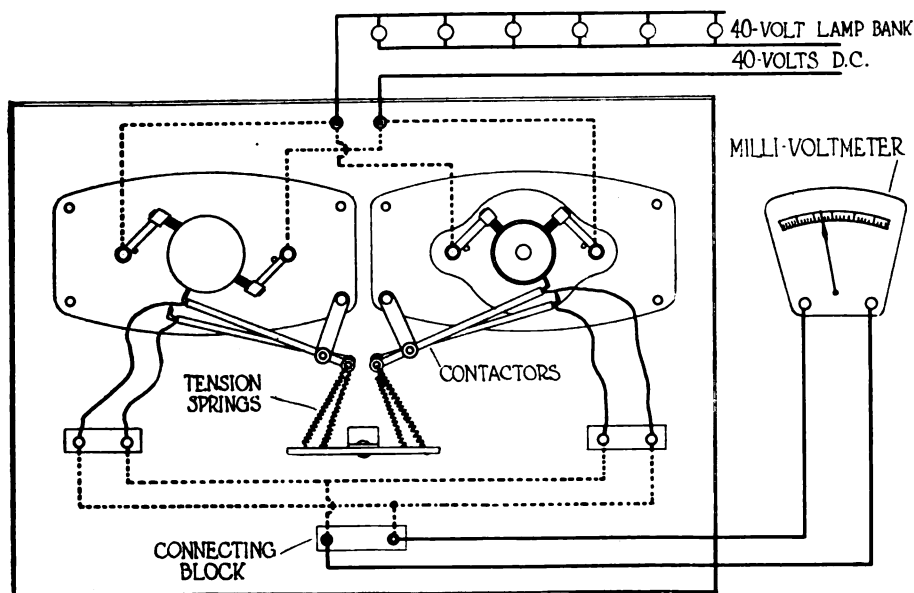
110-volt alternating current circuit are provided on this bench. Across these circuits are connected banks of lamps and sets of test wires in series. With one of the test wires on the armature shaft and the other on the commutator, a ground can be readily determined.

If the point of grounding is not readily discernible, the commutator bars are short circuited by means of heavy copper wire and the shaft and commutator are connected directly across the 40-volt circuit. A slight flash will locate the exact point of the trouble and it can usually be remedied without removing any of the armature coils.

A special piece of apparatus is provided for testing armatures used with the four pole generators. This apparatus consists of a frame end of a generator with the brush rig on it, as used in regular operation. This is mounted flat on the bench and the armature is set vertically into it. Bushings of the same size as the bearings are provided to be used when testing armatures without the bearings attached.

The two brushes are connected in parallel with the two direct current test wires previously mentioned. Thus when the brushes come in contact with the commutator to be tested, the lamps of the test bank are lighted and the current flowing through the armature is only that amount flowing through the bank. Since this is not usually over one or two amperes, there is very little heating effect on the armature winding.

Two insulated fingers of fiber carrying



Apparatus for testing two-pole and four-pole generators. The hinged contact pieces pass the current through the armature windings and locate the defective coils by a reading on the sensitive voltmeter

copper contactors on their points touch on adjacent bars of the commutator. To these copper contactors is connected a millivoltmeter. As the armature is turned around by hand, the contactors come into connection with different sets of bars. The reading on the meter is the voltage drop between the two bars which the contactors are touching. Since this is a direct indication of the resistance, an open circuit or a short circuit is readily shown up.

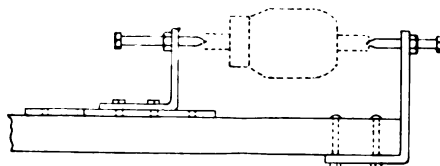
In case of a short circuit the reading will be less than normal and possibly nothing, depending on the resistance through the short circuit. If an open circuit exists, the reading will be higher than normal and care should be used that the meter needle does not go beyond the scale limit, as would happen in case of an appreciable open circuit.

The cause of open circuits often lies in the point of attachment of the armature wires to the commutator bars. Short circuits usually exist between adjacent bars of the commutator, and sometimes just back of the commutator bars.

For testing two-pole armatures, the device shown in the illustration is used in connection with the adjustable jig. The same wires which lead to the brushes in the four-pole armature tester are brought to the two spring brass wipers which take the place of the brushes. The meter wires are easily held in the hand and touched to adjacent bars, since the bars are wider in the two-pole armatures, and the commutator is more accessible, being placed horizontally.

After the open circuits have been soldered up and the short circuits cleared out, the armature is again tested. When it shows up as it should, i. e., giving approximately the same voltage drop between any two adjacent commutator bars and being free of grounds, it is turned down on a lathe in the regular manner.

By placing the armature in the lathe between centers and using a sharp tool just the width of the mica between adjacent bars, set horizontally in the tool post on the carriage, the commutator is quickly undercut by moving the carriage



Simple jig on bench to support armature during repair

back and forth and rotating the armature one slot further each time.

After coming from the lathe the armature is again tested. In case the binding cord back of the commutator has been removed in soldering up the leads, this is now replaced. A loop is laid down on the winding at the start and after winding the cord over this loop, the end is pulled down under the other turn of the cord, thus securing it. The cord is then painted with insulating varnish. After drying, the armature is ready to go back into the generator again.

On a rack suspended above the armature bench are placed spools of wire and binding cord, so that wire or cord can be quickly reached and at the same time be out of the way when not in use. Compressed air, piped from the large pressure tank, is used for blowing out all foreign matter from between the bars and armature conductors before the binding cord is replaced.

After the field frames are cleaned, the field coils are inspected and tested for open circuits with the regular test wires. When new brushes are fitted, they are seated to the commutator and the generator is then reassembled.

The generators are tested with a 1/6 hp. 40-volt (rewound from 110 volts) cumulative - compound - direct - current motor. On the instrument board back of the test motor are mounted a voltmeter and ammeter. The voltmeter is across the main generator leads and the ammeter in the circuit leading to the storage battery. A rheostat is also provided for speed control.

This rheostat places resistance in parallel with the series winding of the motor, cutting down the field excitation and consequently increasing the speed.

A double contact and a single contact bayonet socket are mounted on the board also. They are connected to the storage battery. A 40-volt test lamp with leads is also mounted on the board and on the rear is a reversing switch to change the direction of rotation of the motor to allow for testing generators having either direction of rotation.

On the end of the motor shaft is mounted a leather universal joint with a sleeve coupling and set screw. The generator shafts which will not fit this coupling are provided with a bushing which holds it tightly in the coupling while being tested. Special iron blocks are provided to bring each type of generator to the proper height to couple to the motor shaft. Two vertical rods support a heavy cross piece over the top of the generator. In this cross piece is mounted a long set screw which holds the generators tightly to the stand while being tested.

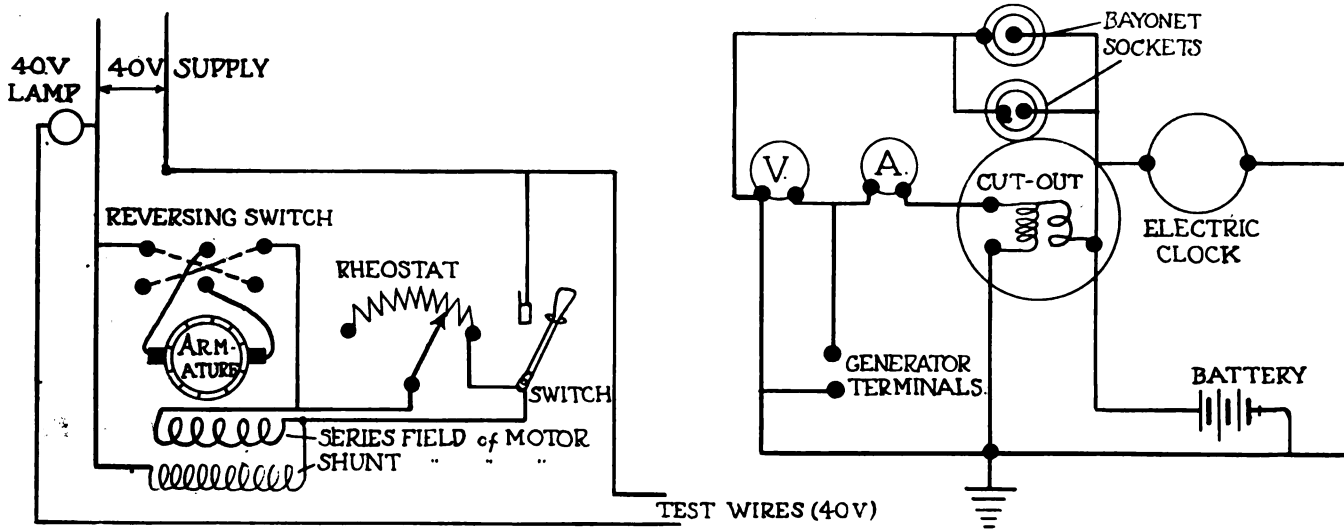
STARTING MOTOR TESTS

A flywheel such as used in the car is mounted on a bench with a special seat built up for mounting the starting motors. Bearing against the smooth outside face of the flywheel is a friction brake, adjustable through weights suspended on the end of a lever.

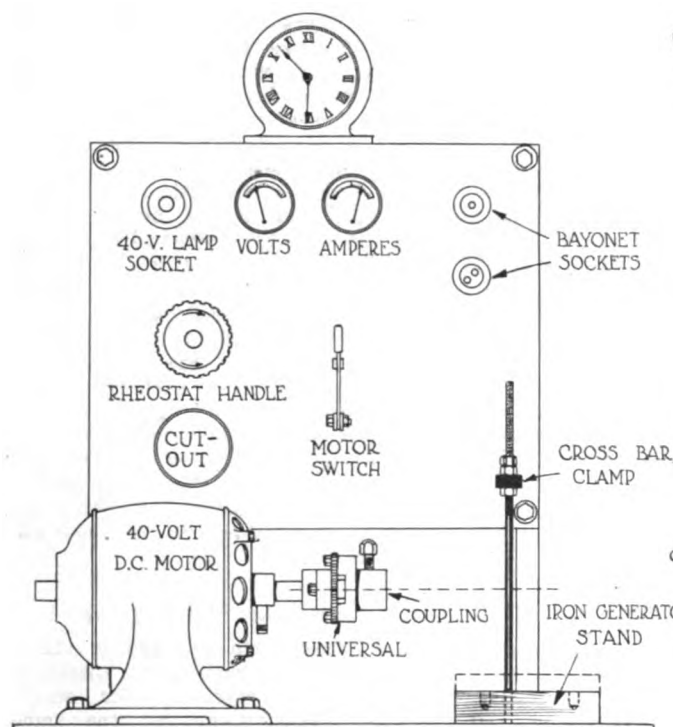
The weight can be adjusted so that the starting motor will have the same power to deliver as when cranking the engine after being mounted on the car. For working on the motor armatures, the adjustable jig described under generator repairs is used. Regular taper terminals are attached to the starter cables and a large capacity knife switch is inserted in one of the leads. This test apparatus not only serves for starting motors, but is largely used for testing storage batteries.

MAGNETO TESTING APPARATUS

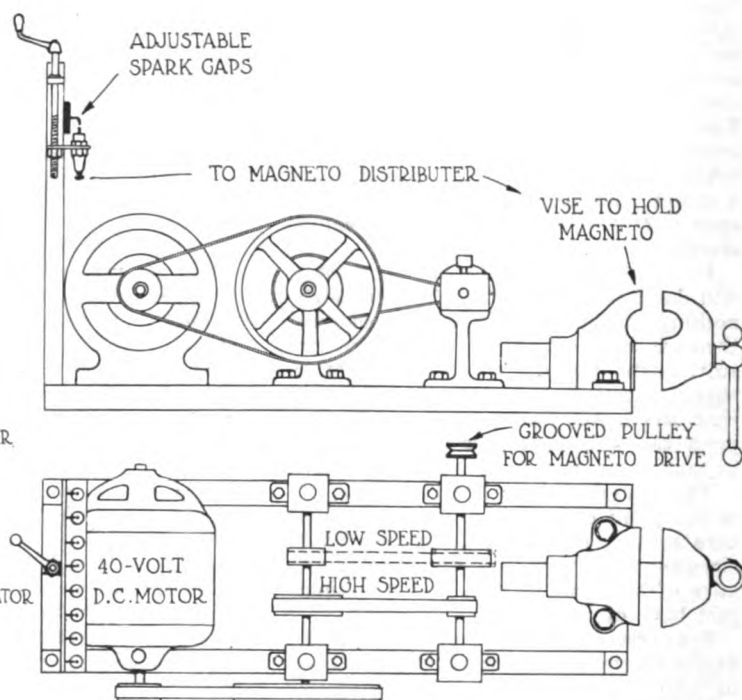
Magnetos are tested by connection to a 1/6 hp. 40-volt direct current motor, through two countershafts. The countershafts have two sets of pulleys so that they may be run at different speeds. The



Wiring diagram of instrument board for testing generators. Left, wiring for a 40-volt compound motor used to drive the generator at various speeds. Connections of the instruments are shown at the top of the next page



Instrument board and base in which generators under test are clamped. The wiring for this board is shown on the preceding page



Apparatus for testing magnetos consisting of a 1/6-hp. motor driving through countershafts which permit of different magneto testing speeds

same belt between the two countershafts is used in either case. A grooved pulley is used to fit the standard taper of magneto shafts and this is driven from a grooved pulley on the second countershaft by means of a round belt.

The magneto is set in a vise at just the proper distance from the second countershaft to give the round belt the proper tension. Mounted above the motor is a set of adjustable spark gaps to which the secondary terminals of the magneto distributor are connected. The distance between the electrodes of the plugs is varied by a small crank conveniently mounted.

If desired, the magneto distributor terminals may be connected to a set of plugs in a compressed air chamber with a glass cover.

Besides the two speeds provided by changing the belt between the two countershafts, the motor speed may be varied by means of a rheostat in parallel with the series field of the motor as is done in the case of the generator test motor.

The electromagnet for remagnetizing the magnets is mounted horizontally under the magneto bench and enclosed in a wood frame with the pole pieces projecting on one end and the terminal connections on the other. A switch is mounted on the side of the wood frame to operate the magnet. The cost of the magnet was about \$12.50 and it was made in the shop. The cores are of 1½ inch round, soft wrought iron of high permeability. The coils are of No. 16 D. C. C. magnet wire wound 8 lbs. 2 oz. to each leg.

STORAGE BATTERY APPARATUS

For charging batteries, a motor generator set is employed. A 5 hp., 3-phase

220-volt alternating current motor is mounted on the same base as a 40-volt 75-ampere direct current generator. The switchboard has eight circuits, four across the line without resistance and four with variable resistance in series. The single-pole circuit switches are provided with metering clips to get the charging rate of any line.

The battery bench is composed of longitudinal strips grooved on top with strips of plate glass inserted, puttied in and then painted with asphaltum. In this way the batteries on charge are having their cases dried out instead of becoming soaked. The top of the bench is at a convenient height for lifting the batteries on it with ease.

On the rear of the bench are five connection posts. To these the circuit wires are led. Some of the circuits have connections on more than one post so that a circuit connection can be changed without moving the batteries. The negative connections are tapped from a large

copper conductor run along the back of the bench direct from the negative generator connection.

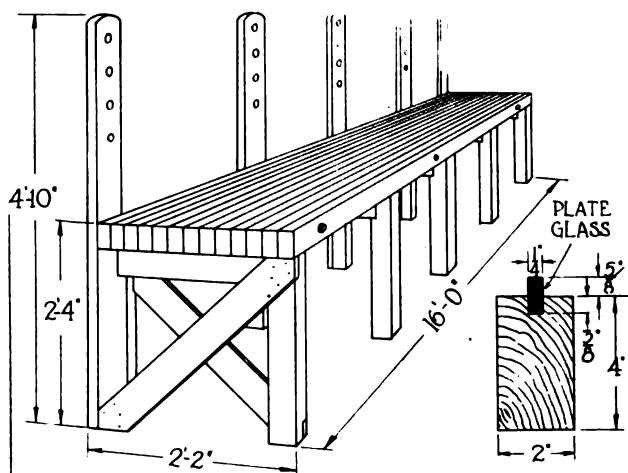
Five three-cell batteries are usually connected in series across a line. Batteries requiring the same rate of charge are grouped together. The rate of charge may be varied from one-half ampere to 30 amperes if desired.

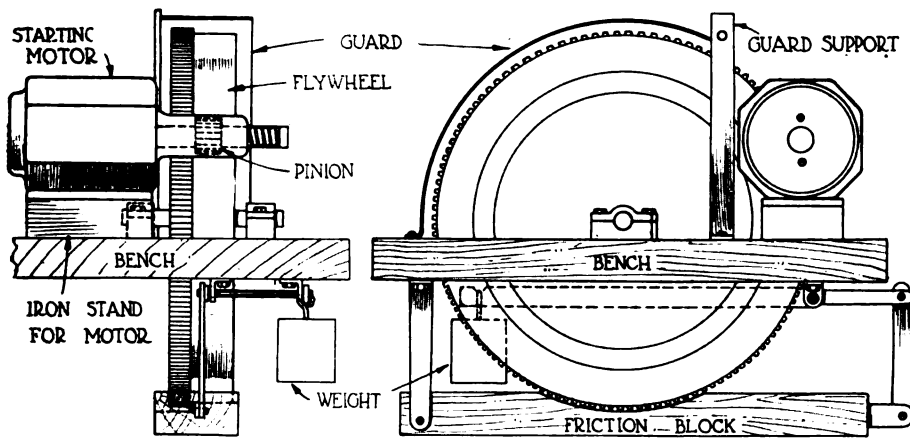
The battery repair bench is covered with lead and has a raised edge to prevent any acid spilled on it from running on the floor. The wash-out sink is of slate 1 in. thick. The wood separators are kept under sawdust in a compartment partitioned off in one end of the sink.

Hydrometer and cadmium voltage tests of all batteries on charge are taken twice per day. The temperature is checked at all times with a dairy type thermometer.

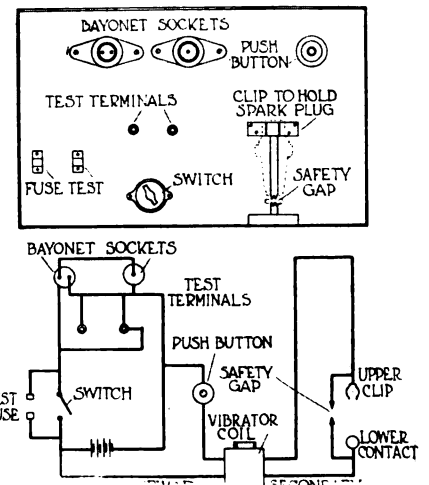
In taking the cadmium voltage, a 3-0-3 volt scale Weston battery testing voltmeter is employed. A rod of cadmium

Special battery bench in which the batteries are supported on glass strips inserted in the top of the bench. The uprights provide a convenient means of supporting the charging connections





Starting motors may be tested quickly on the apparatus shown here. The flywheel is mounted in bearings on the bench and furnished with a wood friction brake to absorb the power



Above—Handy testing board for spark-plugs and miscellaneous testing. Below—Wiring diagram of the board

soldered to one end of a flexible cable makes one connection to the meter and a sharp rod for making connection to the battery links makes the other. The cadmium is immersed in the electrolyte and the other voltmeter terminal connects to the positive and negative terminals of the cell in turn.

Cells are not considered charged until with a current of six amperes (for an 80 A. H. cell) flowing, the potential difference between the cadmium and positive plates is not less than 2.40 (with the positive plates to the cadmium) and

the potential difference between the cadmium and the negative plates is not less than .10 (with the cadmium to the negative plates).

When the cadmium voltage shows that the battery is fully charged and the gravity of the electrolyte has ceased to rise, the cell is considered charged. If the gravity of the electrolyte gets below the proper point, it is then raised by the addition of stronger electrolyte.

Before being delivered the batteries are given a test on the starting motor tester at the starting rate for a few min-

utes. If the voltage falls below 1.75, except in cases of old batteries, the battery is considered unfit for delivery to the customer.

The small test board shown in the illustration is used for testing bulbs with either single or double contact bayonet bases, for fuses, spark plugs, and for connecting leads to test horns or other such apparatus. With such apparatus concentrated on a single board, the wiring is made much simpler and a saving of time is effected in testing lamps, fuses, and the like.

What Is Garage Economy?

TOO many times cheapness is mistaken for economy. Economy from a repair standpoint means the best possible results with the least expense of time, labor, material and money.

One of the big items of repair work has always been the adjusting of bills for repair work, a great part of which can easily be avoided by having the man who had charge of the work demonstrate or test out the car with the owner when the work is finished.

And during the progress of the job the customer should be kept advised of any unexpected defects that may show up after disassembling, and the time consumed from time to time, any part removed and replaced, should be tendered to the customer for his disposal at the completion of the job.

I believe I may say, without fear of contradiction, that economy of repair work is measured by correct defining of the trouble and method of procedure. The replacing of too many new parts when the old parts could be repaired by a small amount of machine work many times is overlooked.

For instance, some repairshops replace a piston and piston pin when the machining of a new over sized pin would make a much better as well as cheaper job.

There are many short-cuts in repair work, particularly in repairs where frame and axles can be straightened without removing them from the car or taking out the engine.

To arrive at this result, expert knowledge in diagnosing of the difficulty is the first essential step. Always keep your skilled labor where it will do the greatest amount of good. Equipment with proper hand tools for disassembling is of the utmost importance. Facilities for lifting out engines, elevating frames, bodies, etc., etc., is another very needful equipment.

Co-operation Necessary

Proper co-operation of repair and parts departments in furnishing supplies and repair parts with as little delay as possible is necessary. Many times during the period of repair work the need of a standard cap screw will delay quite as much as any large part. All standard parts, such as cap screws, cotter pins, taper pins, lock washers, etc., should be kept in stock, but, on the other hand, the smallest part should be checked with the utmost care or the leak will assume large proportions in the course of the season.

A garage should be divided into three divisions, namely, Car Sales, General

Stores and Shop. The Car Sales should sell nothing but cars. The General Stores should sell nothing but supplies, sundries, parts, gasoline, oils, etc. The Shop should sell nothing but labor.

Each should sell to the other at exact cost. The overhead should be charged to each as follows: Car sales, 40 per cent; general stores, 20 per cent, and shop, 40 per cent.

A cost system should be so organized as to keep an accurate account of everything bought and sold each day, and should be tabulated into weeks, months and years.

Above all things never let anyone, much less yourself, defile your competitor. It's the poorest kind of economy to even think your competitor is selling for less than you are.

Save oil, save soap, save gasoline, clean with steam, put in a 4 hp. boiler, burn your oil drained from crank-cases. Keep junk and mixed iron off the floor by selling by weight; bale paper and see it brings a fine price. Use sawdust on the floor and burn it; it is better than sand. Melt solder out of all old smashed radiators. Pound copper wire and gaskets and old radiators into shape. Use unskilled labor where possible.—Andrew Aulsebrook in a paper read before the Ohio Automobile Trade Association.

Repairshop Shortcuts

From The Motor World Roadman

No. 1574—TOOL BOX FOR REPAIRS

A box or tray for holding tools, screws, nuts and small parts is most useful when it is close at hand. Such a box, about 12 x 8 x 6 in., mounted on a hanger of strap iron shaped to fit over the frame of the chassis, saves time and temper. The hanger is of 1 x ¼ in. stock. It extends under the box and supports any reasonable weight.—C. C. Spreen, Flint, Mich.

No. 1575—CARBURETER FEED PIPE FLANGING TOOL

A tool for flanging the ends of any small pipe may be made from two pieces of steel hinged at one end and held together at the other by a removable fastener. Holes to fit pipes of different sizes are bored, as shown, and counter-sunk at the top. The tube is annealed and held in the tool with its end projecting. A punch driven into the tube turns the edge and produces a smooth flange with a few taps of the hammer.—Bennett & Dale Garage, Trinidad, Col.

No. 1576—STEADY GRIP FOR SHAFTS

A device for holding gears, pulleys and shafts to prevent them from turning while working upon them is made from a hardwood handle 1½ in. thick, to which a leather belt is fastened with wood screws. A transverse strip of steel is bolted through the wood. The strap is looped around the gear or shaft and passed under the strip, where it is clamped at any point with wing nuts. The shaft can then be turned by the handle as needed and is firmly held in any position.—C. C. Spreen, Flint, Mich.

No. 1577—CAR-MOVING JACK

A handy jack for garage use is made with a wooden platform mounted on

castors on which is bolted a strong A-shaped wooden frame. A piece of pipe or shafting supports a lever as shown. A piece of sheet metal bent to fit under the axle is bolted to the short end of the lever. The jack is easily moved from place to place and the car is lifted to any desired height in a moment.—P. A. Kent, Wilson & Ohm, Waukegan, Ill.

No. 1578—CAGE TYPE VALVE GRINDING TOOL

A simple tool for grinding cage type valves by hand will be appreciated by many mechanics. Such a tool is made of a piece of tubing or a cold-rolled piece of steel with the end drilled out a little larger than the valve stem diameter. In this a hole is drilled crosswise to take a cotter pin. The latter engages the slot in the valve stem, and the tool is rotated by means of a handle through the upper end.—C. C. Spreen, Flint, Mich.

No. 1579—SAFEGUARDING BITS

Difficulty is often experienced in drilling through spark and throttle control rods and the like, owing to the bending of the small wire drill bit which must be used. This may be avoided by drilling a hole through a piece of 1-in. board and placing the latter against the work. This will hold the bit true and steady regardless of pressure, and also permit the job to be done in considerably less time.—G. H. Wright, A. L. Hendricks Motor Co., Ft. Smith, Ark.

No. 1580—VALVE-SPRING REMOVING TOOL

This is a tool for removing the valve springs from Chevrolet 490 engines. A ½-in. pipe serves as a handle. This is flattened at one end and in the middle.

At the end is attached a hook by means of a loose rivet and cotter pin. A piece of steel, shaped to straddle the valve stem, is similarly attached to the handle at the center. The hook is caught beneath the ledge at the top of the cylinder head and pressure exerted on the other end of the handle. A flat steel bar will serve as a handle, but the pipe gives a firm and comfortable grip.—C. C. Spreen, Flint, Mich.

No. 1581—TAP WRENCH

A simple and useful wrench for taps and reamers is made from two pieces of ½ or ¾-in. square steel stock 8 in. long and two ¾-in. cap screws. The construction is clearly shown. A V-shaped cut is made in each piece of steel so that when joined they make a ¾-in. square hole. A ¾-in. hole is tapped in each piece for the ¾-in. cap screws and the corresponding hole in the other piece is bored to 13/32 in. The two pieces can thus be brought to a firm hold upon tap stems of various sizes.—C. C. Spreen, Flint, Mich.

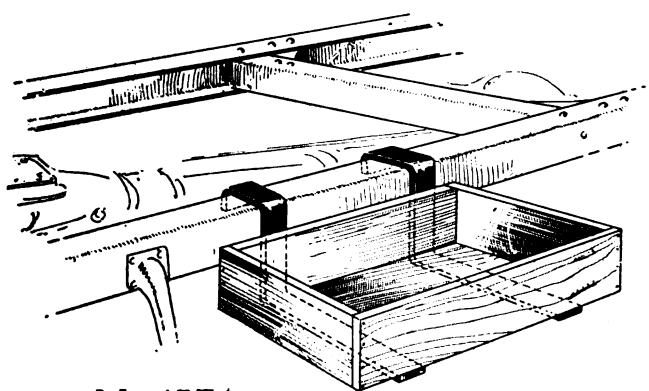
No. 1582—ADJUSTABLE BEDPLATE FOR SMALL MOTORS

A convenient bedplate for small electric motors, adjustable to take up the slack of the belt, is made from a hardwood plank and two guide strips. The plank is 2 in. thick and to this the motor is securely bolted. A piece 1 x 1 in. is sawed the length of each side of the plank. The two guide strips 2½ in. wide are sawed out to fit the plank edges loosely, and are bolted, as shown, on a fixed base. The thickness of the guides is such that when the bolts are screwed down the movable bedplate is firmly clutched. A turn of the bolts permits easy and quick adjustment.—Forest M. Rhodes, Thompson, Conn.

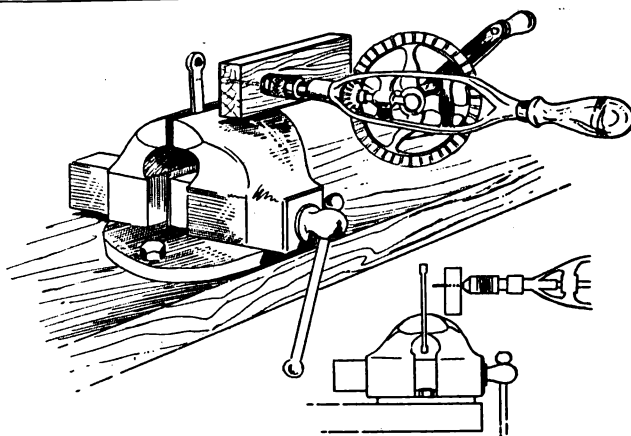
\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly

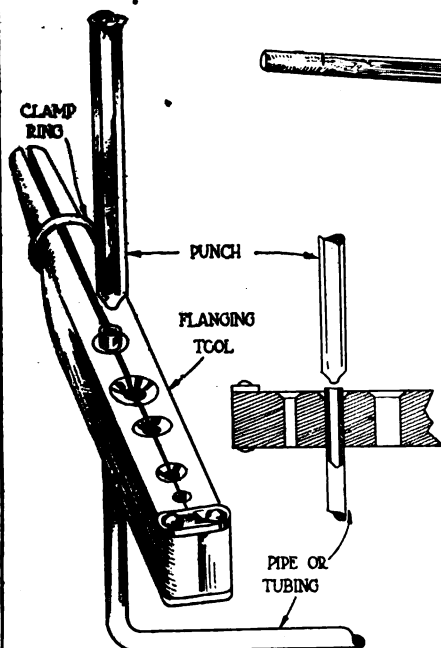
but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.



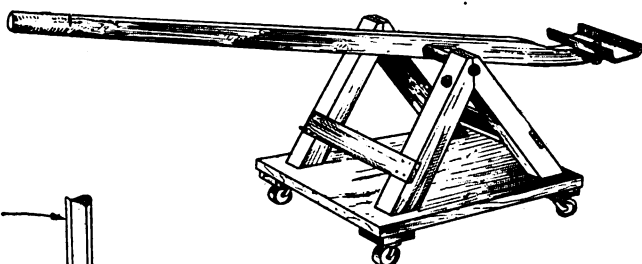
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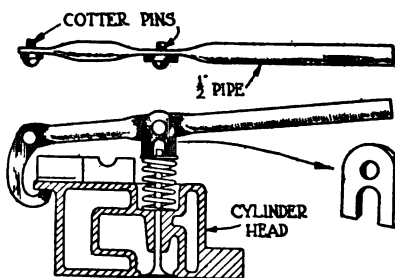
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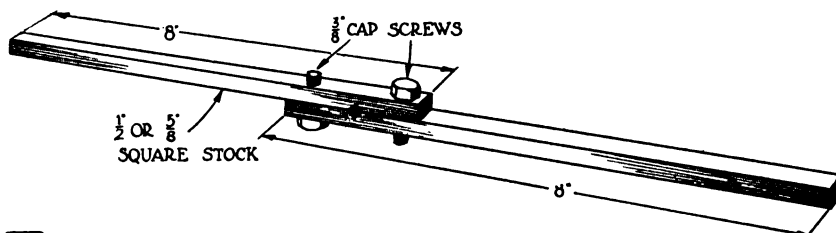
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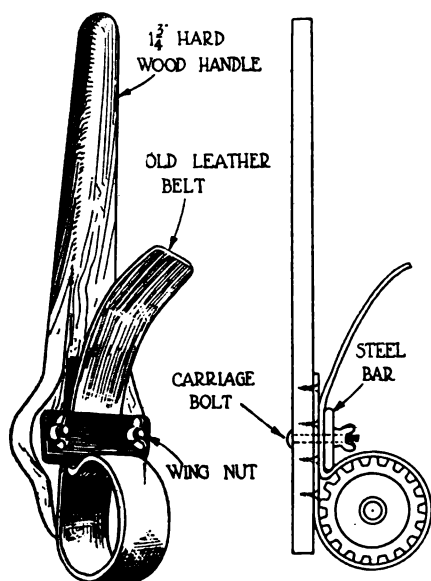
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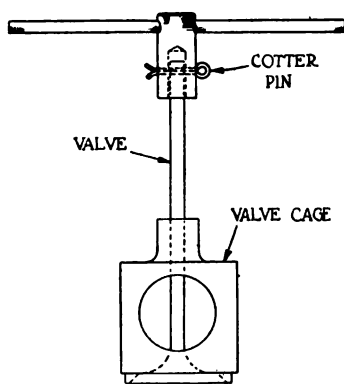
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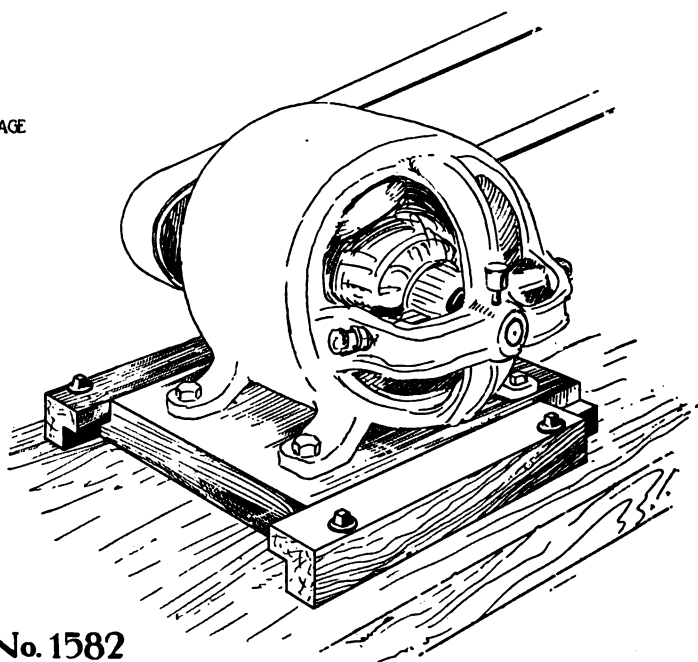
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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Is Garageman Responsible for Stolen Parts?

Editor Motor World: In the spring of 1914 a party left with us for repairs an automobile. The necessary parts were ordered and shipped to us C.O.D. The amount involved was about \$140. As the car was an old model, we did not feel like putting this much money into parts for it and therefore requested the owner to send us his check so that we might get the repairs. This he did.

The car was put in good shape and he was advised that it was ready, and a bill was sent for the labor. He advised at that time that he was unable to pay the bill, but expected that within a few months he would be able to do so.

We wrote him many times during the balance of 1914 and in 1915, 1916 and 1917 regarding the car. In our final letters we wrote him that if settlement was not made it would be necessary that we place the account in the hands of our attorney for collection. He came to our office in January of 1917 and was still unable to pay cash for the work done. We had been charging him storage on his car from the time it was completed at the rate of \$6 a month. We offered to throw out the charge that we had made for storage in order to effect a settlement. He agreed to this offer and gave us his note for the amount.

April 1 he came after his car, which was in our warehouse, where we store cars for dead storage. We had had some heavy rains just previous to this time and as there is no cement floor in the warehouse there was considerable mud there and it was almost impossible to get the car out.

He saw conditions and said we could let the car remain there until such time as we could get it out conveniently. Upon getting the car out we found that the magneto and carbureter had been removed. We do not know whether some of our mechanics removed these parts or whether they were stolen. The owner was here when this was discovered and was very angry because the parts were gone and the car was not ready to be delivered.

We assured him that we would replace the parts and have the car ready for delivery within a few days. He would not listen to us and simply stated that he would keep the car.

We have now placed his note in our

Are You Perplexed?

TO explain to the dealer and garageman various phases of the law is the purpose of this department. We know it has saved money for many of our readers and has avoided unnecessary litigation.

Mr. Kaiser will be glad to help you untangle your legal knots. Send them along.—EDITOR.

attorney's hands for collection and suit has been brought. He has now brought counter-suit against us for damage to the car. He claims he had a chance to sell the car and get \$400 for it and that it was not in running condition at the time, also that we did not use the parts in the car that he paid for. What we want to know is:

Are we responsible for the parts stolen from this car? Remember that the car was put in shape and ready for delivery and the owner was notified. The car remained in our possession for more than three years before he came for it. We have a large sign in our garage in a conspicuous place which reads: "This garage is not responsible for loss by fire or theft."—Haskell Auto & Supply Co., Glendive, Mont.

Answer: I have stated many times in these pages that a garageman is under the duty to exercise ordinary care and prudence, according to the circumstances, in protecting the goods left in his care.

A garageman is not an insurer of the property left with him, however, but is only responsible when he has failed to perform his duty.

In case of a suit all that the motor car owner need show is that he delivered the property to the garageman and that the latter has failed to return it to him. The burden of proving lack of negligence then rests upon the garageman. As the court said in the case of Claffin vs. Meyer, 75 N. Y. 260:

"The cases agree that where a bailee of goods, although liable to their owner for their loss only in case of negligence, fails, nevertheless, upon their being demanded, to deliver them or account for such non-delivery, or, to use the language of Sutherland, J., in Schmidt vs. Blood, where 'there is a total default in delivering or accounting for the goods' (9 Wend.

268), this is to be treated as prima facie evidence of negligence. . . . This rule proceeds either from the assumed necessity of the case, it being presumed that the bailee has exclusive knowledge of the fact that he is able to give the reason for his non-delivery, if any exist, other than his own act or fault, or from a presumption that he actually retains the goods and by his refusal converts them."

If the garageman can show a good excuse for his inability to re-deliver the goods left with him he is, of course, not responsible for their loss. The question of whether you used due care in keeping the goods which were stolen would be for the jury to decide, and if you have a jury trial, I think the fact that the owner failed in calling for the goods so long would be a big point in your favor.

Recent Decisions

The Supreme Court of Colorado recently decided that a person cannot recover damages for the loss of use of a car injured in a collision while it is being repaired. Judge Teller, of that court, said:

"It is urged that as the evidence showing that the car was used only for passengers there was no law for estimating the damage from the loss of such car. Cases are cited which hold that damage from such a source is too speculative. We are inclined to agree with that opinion."

In West Virginia there is no lien for the storage of automobiles when the owner takes them out each day and uses them in his business, according to a late decision of the courts of that state.

The right of lien in West Virginia only protects garagemen while they have uninterrupted possession of the car.

Want Name for Submarine Chasers

WASHINGTON, D. C., Feb. 28—The Navy Department has asked the public to suggest a name for the new boats being built by Henry Ford. Two letters are wanted. Assistant Secretary Roosevelt proposed S. D. for submarine destroyers, but he thinks a better name can be found. J. M. (jitney marines), T. J. (tin jennies) and other like suggestions have been made but not approved. The Ford ships are going to be midway between submarine chasers and destroyers. They will use depth bombs as their principal weapon.

Be a Little Bit Better To Be Worth a Whole Lot More

By G. L. Wellman

Assistant General Sales Manager, Studebaker Corp.

JOHN BROWN, salesman, earns \$10,000 a year. Bill Smith, salesman, earns \$2,500 a year.

Is John four times as good as Bill?

John isn't, but he gets four times as much, and he is worth four times as much to himself and to his company.

Funny figures aren't they?

Nancy Hanks, race horse, could do a mile in about 2 minutes flat. Nancy was worth \$80,000. Setting Star could do a mile in 2:10. Setting Star was worth \$20,000. Nancy wasn't four times as fast, but she was worth four times as much of any man's money.

Charley Chaplin gets \$500,000 a year; Mary Pickford \$50,000 a year (if it hasn't been raised lately). How many people like Charley ten times better than Mary?

The gist of this preamble is this: *You just have to be a little bit better to be worth a whole lot more.* A speck in a 3-karat diamond cuts its value in half.

Note this: There are 12 salesmen in the Los Angeles retail branch of a big motor car company who have been there for a year. The average sales of four of these men is 60 per cent higher than the average sales of the other 8. Similar figures apply to Detroit retail and New York retail; and similar figures apply to every retail organization in the United States, perhaps, which employs half a dozen salesmen.

Tragedy of Human Endeavor

Are these leaders 60 per cent more capable than the others. They are not, but they get 60 per cent greater results. As Omar Khayyam says, "A hair perhaps divides the false and true."

The tragedy of human endeavor is that there isn't just a little more endeavor.

No; not necessarily a little more work, but usually a little more thought; a little more interest in the job; a little more concentration—and then come the ideas.

For instance, a salesman down East was put up against a hard selling territory. For eight weeks he didn't get an order, but he kept everlastingly but tactfully and diplomatically after a certain Mill owner.

The Mill owner bought a car, and seven more prospects were led to close in three weeks because of this man's judgment in favor of the salesman—and his car.

The same salesman, a little later, needed an extra order to complete his record for the month. He had cudgeled

his brain for a prospect. Then he happened to hear the boss read a paragraph from the morning paper: "Mr. So-and-So was left \$10,000—some fellows are lucky." The salesman said, "Why wouldn't he be a prospect?"

He called on him, but the man wouldn't buy an automobile. The average salesman would have quit right there, but this salesman reasoned that some other man who inherited money might be a good prospect, so he went down to the Surrogate's office and got a list of lucky heirs, and from these new prospects he actually made the much needed sale.

Prospects on the Fence

Very often we find a prospect on the fence—"between our car and the competitor's car." Eventually he comes over on the side of the best salesman—not always the best car. The average salesman loses the on-the-fence prospect to the better salesman *because the better salesman has made a closer study of the respective merits of the two cars, or he has previously prepared himself for just such an emergency, therefore has more assurance and confidence that he can make the sale.*

He has studied. He has read trade papers. He has read catalogs.

From the flying moments, from the chance half hours, and from the evenings spent at home, he has stored up in his mind facts and information which make him that much more interesting, that much more convincing, and that much more informative to the prospect "on the fence."

The reason why any one of the best 4 in the Los Angeles branch gets more business than any one of the other 4 is because he used the flying minutes and the spare hours and the evenings at home. He is just that much more interested in his job.

Bill Smith, the \$2,500 man, is an average good salesman. He dresses well, talks well, acts well, has good habits, and he has a pretty good right to be proud of himself, but if Bill would break out of the rut, if Bill would make up his mind to see half a dozen new prospects a day instead of working along the lines of least resistance, calling on the same old prospects, Bill would quadruple his efficiency in 30 days, or in 60 days at the most. Sounds unbelievable, doesn't it?

But it can be solved mathematically.

Bill-in-the-rut works on the same old 50 or 60 prospects. John Brown, 60 per

cent better in results, sees six new prospects every day of his business life. Six prospects a day means 180 prospects in 30 days.

Do you wonder that John gets 60 per cent better results? He has the same number of old prospects which Bill works on, and he has 180 new ones besides. Out of 180 people, it is a mathematical fact that out of a certain number of prospects there is one who will buy a car in a given time—even without salesmanship.

But it isn't all in the prospects. John not only calls on new prospects, but John reads a little more, reasons a little more, and perhaps thinks a lot more.

The case of John Brown and Bill Smith is not only a tragedy to Bill Smith but a tragedy to his company. Supposing out of the eight men the other four were as good as the first four. The average sales of the first four were 120 cars since the first of the year. The average sales of the other four were 74 cars since the first of the year. If the four men would have sold 50 cars more each, the total would be 200. The boss lost 200 sales because four men out of eight were not 5 per cent better.

Shift the scene and consider the dealer. On a chart developed by a certain sales manager some time ago showing the results based on the operating cost of average dealers, it was proven conclusively that an average 50-car dealer who sold 40 cars made only \$300 for his year's work. If he could have sold only 10 cars more his profits would have been \$2,500 more.

Be a Little Bit Better

In this life we make our records by being able to do just a little better than the average; just a little more than we might reasonably be expected to do.

A thousand Bill Smiths will read these paragraphs. Out of the thousand a few will cash in on this piece of paper like they would on a \$7,500 check.

Because they get this message, accept its truth and let it sink in, they will make several thousand dollars more in the next twelve months than they did in the last twelve.

They will do it by beginning NOW; their work this year will be better than last year; their results greater, and their profits more than they have ever been before.

Are you one of these men?

Then begin NOW!

Editorial Observation

Salesmen's Opportunities

A LOT has been said during recent months about the jobbers' salesmen. Probably a lot more will be said during the months that are to come. Probably some jobber's salesman will take it to heart, and it is certain that those who do take it to heart will profit greatly thereby.

The jobber's salesman is a mighty important man. He is one of the links of the distributing chain of a line of goods that runs into millions of dollars a year. The dealer in accessories is another link and the jobber's salesman is the link that is directly hooked into the dealer link. Any link in the chain that is weak creates a "bottle-neck" and holds up everything all along the line.

The jobber's salesman should be a teacher to the dealer. He should know his goods, know their sales points and be able to teach the dealer how to sell them.

And to go back a step—perhaps the jobber himself has a duty to perform in this situation. Perhaps it might be a good thing if the jobber would start a school of some kind for the instruction of the salesmen. How can the salesman be expected to become a better man unless he receive instruction of some kind?

Some men can teach themselves and practically lift themselves by their own boot straps, but they are the exception rather than the rule.

With the jobber teaching the jobber's salesman, with the salesman teaching the dealer and with the dealer thereby being the better distributor of goods, the output of the entire accessory trade will be increased enormously. As things stand now there is a restriction of output that possesses wonderful possibilities of improvement.

What About Cars?

DEALERS who are not now getting a supply of cars are only providing grief for themselves later on. What is the use of a nice lot of orders and prospects of business if you have nothing to deliver?

In years gone by, dealers have lost a lot of money because they were unable to get cars with which to fill orders, but most of that difficulty was due to the fact that the demand was greater than the supply. This situation is different to-day. The trouble is with freight-car transportation.

Without freight transportation the only remaining thing for the dealer to do is to drive the cars away. No matter how far away from a factory a dealer is located, he should begin to consider the drive-away unless he happens to be in a fortunate section where he is able to get cars by freight.

The other day a southwestern distributor whose factory is in Ohio went to Michigan, looked around the factories for a while and decided that

dealers in his section might have trouble getting them a little later on and might not be able to fill their retail orders.

Wherefore he immediately wired his factory to begin shipping his entire year's allotment at once and to keep the cars coming through as fast as they could be turned out, and when the spring demand comes on in full force this man is going to take a lot of the profits that would have gone to other dealers if they had put in a stock of cars now.

The other day the Long Island City plant of the Ford company shut down because it could not get material. For weeks prior to that the Ford man in Providence, R. I., had taken all the cars he could get. Cars are rolled out onto the floor at the Long Island plant and turned over to whichever dealer happens to be there to get them. This Providence man always saw to it that he had some drivers there waiting to grab cars as fast as they came out.

Furthermore, he drove them over the roads to Providence.

In addition to that, he got in a big stock before the price went up. Every car he took in is now worth \$90 more than it was when he took it.

The result is that he has a fine lot of Fords to sell, *and he will be able to sell every one of them.* Several of his friends said: "Oh, he always was awful lucky."

On the same basis it is luck that gives Charles M. Schwab \$1,000,000 a year. It is luck that gives Norval A. Hawkins, the Ford sales manager, a salary that is said to be \$150,000 a year. It is luck that causes every other man to take advantage of opportunities.

The profits of the coming summer depend upon the dealer's ability to deliver the goods, and he can't deliver them unless he gets them in advance.

The weeks between now and the days when the demand will come are mighty few.

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

He Appreciates Motor World Service

Editor Motor World: Am in receipt of your recent highly esteemed favor regarding arrangement of machine tools, which information I appreciated very much, as it just corroborated my ideas, and made decision so much easier.

I can not too strongly emphasize my appreciation of the Motor World, and anticipate each copy with eager interest.

Have received under separate cover Motor World's shortcuts and extracts from Better Mechanics, which I thoroughly have perused and found many valuable points.—F. Gundersen, Bergen, Norway; White, Marmon, Hupmobile, Daniels and Denby dealer.

Closer Co-operation Would Prevent Theft

Editor Motor World: Automobile thefts are becoming all too popular and it is a problem to stamp out this evil. My suggestion is that there should be co-operation between state and municipal officials, automobile dealers, garage owners and insurance companies. The state should enact drastic measures which will prevent the registration of cars not carrying the correct serial or motor numbers that do not agree with the numbers used by the factories.

It should be unlawful for a person to have in his possession an automobile where the identification numbers have been removed or destroyed in any manner. There should be attached to the car in plain sight a certificate of registration giving the name of the owner, address, make of car, year built, type, model, engine number, number of cylinders, registration number, date car was registered, and the signature of the owner should be inserted thereon.

If the identification number of the car does not agree with the numbers on the certificate, the person operating such car should be held by the police officials pending investigation. No garage owner should take a car for storage unless such certificate of registration is attached to the car, and no filling station should be permitted to sell gasoline or oil without first examining the identification card and the car.

Municipalities should adopt ordinances compelling garagemen to take a register of all cars left for storage. Second-hand dealers and junkmen should report daily to the police department, giving list of cars purchased by them. Wrecking establishments should not be permitted to disassemble the car without first reporting full description of the car and name of owner thereof to the police department.

Ordinances should be passed making it a misdemeanor to have in one's possession a tire with its serial numbers removed.

A complete record of stolen automobiles should be filed with the police department and the same published in the daily press and motor car journals.

Either state or municipal laws should be enacted compelling automobile owners to register serial numbers of all tires in use or subsequently purchased.

Suspicious garages and tire establishments that deal in second-hand tires should be kept under surveillance.

The writer has interested himself in the subject of theft of automobiles and accessories to the extent that the ordinances recently adopted in the city of San Francisco were his suggestion. Los Angeles is about to adopt similar ordinances, and we hope to secure the co-operation of other cities on the coast.

During the month of December there were more casings stolen in this city than in any previous month. The police department used several decoy automobiles, placing them in the residential district, where automobile tire thieves were most likely to operate. The decoy cars were kept under observation and after several nights had elapsed the detectives in charge discovered two boys in the act of stealing the casings from one of these cars.

These boys used another automobile in which they placed the stolen tires after removing the same. The detectives gave chase, caught the boys and in their confession they stated that a certain dealer in second-hand tires would give them instructions as to the kind of tires he needed in stock, and these boys would proceed to find the same, and they were very successful in their manipulations.

Not alone would they steal certain tires but automobiles as well, the automobiles being disposed of through sec-

ond-hand dealers. The dealer would tell these boys that he wanted a six-cylinder Buick, and before twenty-four hours would elapse they would have such a car in their possession.

Regarding tires that may have their serial numbers buffed off, I am advised that many tire manufacturers dispose of their "seconds," which are identified as such after the numbers are removed, and I believe that state laws should be enacted not permitting factories removing these numbers but that the word "seconds" be stamped thereon, or if they do not, for business reasons, desire to use this term, they could use a separate set of serial numbers.—W. M. Klinger, General Agent, London & Lancashire Fire Insurance Co., San Francisco.

Must There Be a Goat?

Editor Motor World: I read with interest your valued journal, particularly the "What Others Think" page. I, too, think service should be sold, not given away. Also that no garage can be handled successfully only on strictly cash basis. Another drawback with us that I haven't noticed mentioned by any of the writers, is the replacing of defective parts on new cars. We have several hundred dollars tied up most of the time in defective parts that we cannot find any way to overcome.

For instance, we sell a new car which is guaranteed by the company for 90 days. In twenty days the generator, which is worth \$40 wholesale, goes wrong. The customer returns the car to us; we replace the generator with a new one. The owner of the car won't pay for the new generator as the car is guaranteed to him by the manufacturer for 90 days, so we have \$40 invested. We are obliged to send the generator to the state agent; he sends it to the manufacturer of the car; they pass it on to the generator people.

In five or six months we receive a credit slip from the state agent from whom we get our cars, for \$40 less \$1.80 express for passing it around through three or four hands. We have been out the use of \$40 for six months and have a credit slip for \$38.20. Now it is up to us to purchase parts or something to the equivalent of \$38.20 to get our money back. It looks to me as if the local agent was the goat.

I would like to have this answered through this journal by some of the readers that have had experience of this kind and tell me how to stop the leak. In some cases we take off the defective part and fix it when we do not happen to have one. Then a new one comes C.O.D. on next express and we are obliged to wait several months for the old part to go through its several channels before we can get back our money that we paid out for the new part that came C.O.D.

It seems to me that when they receive the old defective part before they ship the new one, they should shoulder the load and send us the new part free of charge.—James Sylvester, Lawton, Mich.

The RETAIL NEWS

MIDDLE WEST

Otto J. Nienow, Merrill, Wis., will open an accessory store at 1305 River Street.

C. A. Enerson, Black River Falls, Wis., has purchased the repair business of James Pugh.

Edward T. Rippey has purchased the interest of his partner, Fred J. Pullen, in the Ideal Service Garage, Hartford, Wis.

The City Garage, Antigo, Wis., has installed new machinery and equipment, including a battery-charging and repair outfit and an air compressor.

The Duplex Sales Agency, Lansing, has moved to the building at Washington and Shiawassee Streets, formerly occupied by the Overland agency.

The Grand Rapids Hackett Agency has leased new offices at Pearl Street and Ottawa Avenue, Grand Rapids.

The Boulevard Auto Co. will open salesrooms for the Elcar and the Panhard truck in Grand Rapids.

The Henderson Garage, Grand Rapids, has moved to 1120 Division Avenue.

The Peninsula Auto Sales Co., Marquette, has taken over the business of the J. S. Davis Motor Co. and will sell Jackson and Maxwell cars in Marquette, Baraga, Dickinson, Delta and Iron counties.

The Homer Sly Auto Co., Grand Rapids, has opened a salesroom and will handle trucks, automobiles, tires and supplies.

The Western Michigan Motor Co., Grand Rapids, has moved from its old quarters, Ottawa and Lyon, to the 2-story building at 310 Ionia Avenue, N. W.

E. B. Thurston, Rockford, Mich., has opened a Ford service station in the Monarch Garage.

The Cadillac Motor Sales Co. has taken over the business of the Cadillac Automobile Co., Peoria, and will operate the garage, salesrooms and machine shop of the company and distribute Cadillac cars in 37 counties of Illinois. The salesroom is at 1701 Main Street.

New Garages

W. F. Hagen Co. Manistowoc, Wis.
Charles Selk. Manistowoc, Wis.
Boynton Auto Livery Co. Milwaukee
Bear & Jaberger. Monroe, Wis.
Campbellsport Auto Sales Co.

Campbellsport, Wis.
Cline Smith Leroy, Ill.
Beatty Garage Co. Quincy
Samuel Postlewait. Bement, Ill.
C. J. Moody. Rockford, Ill.
J. S. Davis. Marquette
A. J. Torrance. Lansing
George Burke. Grayling, Mich.
I. H. Gingrich & Son. Grand Rapids, Mich.
M. E. Fitzgerald. Richmond, Mich.

PACIFIC COAST

H. E. Peterson and A. C. Cartmill, Spokane, are moving to their own building and will handle Harroun cars.

W. S. Guy Motor Sales Co., Everett, Wash., is erecting a new building adjoining its salesroom. This will be 2 stories high and 110 x 125 ft.

Western Truck & Tractor Co., Spokane, has rented salesrooms at 1201 Sprague Avenue, Spokane, and will handle Garford trucks and tractors for eastern Washington, northern Idaho and western Montana.

Ballou & Wright, Seattle, have moved to larger quarters at 1513 Twelfth Avenue.

Pacific Tire & Rubber Co., Portland, has opened a lens service station for the I. L. C. lens.

The Sharp Motor Car Co. has leased salesrooms at Sixteenth and Alder Streets, Portland, and will take over the Saxon wholesale and retail agency.

California Motor Sales Co. will open a branch in Portland to distribute Olympian cars.

New Garages

E. & G. Motor Co. Tacoma
Labbe Brothers. Portland

EAST

The Reinhard Motor Car Co., Baltimore, Oakland distributor, has moved to larger quarters at 128 West North Avenue.

The Hylo Sales Co., Baltimore, Smith-Form-A-Truck distributor, has moved to larger quarters at Mount and Mulberry Streets.

SOUTH

The Smith-Price Tire Co., formerly styled International Rubber Sales Co., Louisville, has leased a building at Third Street and Broadway for a storeroom.

John E. Sadler, Anderson, S. C., is constructing a building for a show room and service station.

New Garages

H. Green Jacksonville
Raiford Simmons. Ocala, Fla.
Lewis Motor Co. Savannah
Milner Motor Co. Monroe, La.

NORTHWEST

P. C. Roberts has purchased the interest of Ed. Anderson in the Central Auto and Repair Co., Oskaloosa, Iowa.

J. W. Hall, Greenfield, Iowa, has bought the Lampher & Dory Garage and will style it Farmers' Garage.

B. K. McInay has opened an Overland-Willys-Knight sales agency at Osage, Iowa.

H. L. W. Meier, Schaller, Iowa, has bought the Woodke Garage.

L. J. Botts, Red Oak, Iowa, has sold his garage to C. A. Johnson.

The B. F. Forbes Sales Co., Burlington, Iowa, has succeeded Weir & Felger.

Automobile Owners Co-operative Tire Corp., Sioux City, has opened a branch at Aberdeen, S. D., 208 South Lincoln Street, with W. E. Bowker in charge.

Val. Knees and E. S. Spelbrink, Essig, Minn., has bought the Essig Garage.

J. A. Helget, Hanska, Minn., has bought an interest in the Hanska Garage from his brother, J. W. Helget.

Hinton & Cole, Truman, Minn., has bought the Morgan & Peters Garage.

Otto Thorsen, Albert Lea, Minn., has bought the interest of Clarence Hellie in the Hellie Auto Co.

Lane & George Trotter, Dawson, Minn., have bought the Dawson Garage.

William Leutink, Wykoff, Minn., has bought the interest of his partner, E. R. Means, in Motor Inn.

Tobias Sand, Hendricks, Minn., has bought the Kurth & Son Garage.

Heppner & Dick, Mountain Lake, Minn., has bought the garage business of the H. P. Goertz Co.

H. O. Tinnes & Son, Bird Island, Minn., have sold their garage business to Wenzel, Frank and William Bregal, Fairfax, Minn.

H. R. Spannuth, Rudyard, Mont., has bought the garage business of Bryan & Spannuth.

Ray Dorn, Raynesford, Mont., has bought the interest of F. M. Phillips in the Phillips & Dorn Garage.

Joseph Morrow, Twin Bridges, Mont., has bought the interest of Allie Nyhart in the Montana Garage Co.

Morris & Nelson, Hartington, Neb., are opening an accessory business.

R. P. Spielman, Larimore, N. D., has bought the Larimore Vulcanizing Co. from Hilton H. Smith.

Louis Etter, Martin, N. D., has bought the Spiess Garage.

E. C. Jacobson, Westhope, N. D., has taken charge of the F. A. Wooden Garage.

W. J. Keck, Ambrose, N. D., City Garage, has bought the interest of his partner, Fred Kolberg.

Gardiner & Freeman Garage, Sioux Falls, S. D., has been sold to W. H. Burke, Harold Hyde and F. R. Wright.

E. F. Henry, Flandreau, S. D., has bought the Amdahl Bros. Auto Co.

Paul, Michael and Will Kinn and Peter Kutter, New Effington, S. D., have taken over the business of the New Effington Garage.

E. P. Nelson Auto Co., Watertown, S. D., has opened a branch at 414 S. Main Street, Aberdeen, S. D., and will handle the Oldsmobile.

New Garages

Sam Sigman Estherville, Iowa
Hathaway & Collins. Onawa, Iowa
Roy Deupree. Persla, Iowa
Little & Bobbett. Manchester, Iowa
C. H. Flaherty. Webster City, Iowa
Munson Brothers. Milford, Iowa
Taylor Auto Co. Bloomfield, Iowa
Floyd & Blair. Dillon, Mont.
M. Smith. Fort Shaw, Mont.
Miller & Jones. Delhi, Minn.
A. W. Winter (addition). Granite Falls, Minn.
Acme Auto Co. Jamestown, N. D.
J. A. Stalding. Canastota, S. D.
Aldrich-Benson Automobile Co.
Watertown, S. D.

SOUTHWEST

Roy Collier, Bellaire, Kan., has bought the garage of A. P. Shepardon.

Roy Wright will open a supply store in El Dorado about April 1, and handle accessories, tires, batteries, and garage equipment.

Tom Sallee, Arkansas City, Kan., has bought the interest of Gall Byers in the South Summit Garage.

Emil Larson, Harveyville, Kan., has rented the Kopp garage.

C. W. Chadwick, Greensburg, Kan., has sold his garage to H. B. McDonalds.

C. A. Hopkins, Fowler, Kan., has sold his garage to Hugh Boyd.

Finley Thompson, Holton, Kan., has opened a storage battery station in the Sutherland Hotel building.

Harvey Hiett, Haven, Kan., has bought a half interest in the Haven Garage. Roscoe Fisher is the other owner.

Frank Pierce and Gus Pope, Potter, Kan., have bought the Potter Garage.

Lewis Brock, Ashland, Kan., has bought the garage of Will Rankin.

J. E. Hardy and Lee Miller, Belpre, Kan., are moving into larger quarters.

Frank Geoffrey, Abilene, Kan., has opened an accessory shop.

F. H. Shultz, McCune, Kan., has bought the business of Hargiss & Shultz.

O. Johnston, Oskaloosa, Kan., garageman, now has sole interest in the firm which was formerly Johnston & Quakenbush.

C. L. Sommers, Canton, Kan., has moved his garage to Rossville, Kan.

E. L. Greenleaf, Kingman, Kan. has bought the Overland Garage from J. P. Jones.

C. H. Einiff, Jamestown, Kan., has bought the supply business of L. T. Fitzgerald.

Finley Thompson, Holton, Kan., has opened a storage battery station.

Bert Eudally, Arkansas City, Kan., has opened up salesrooms and a service station.

Jesse O. Spray, Hays City, Kan., is building a new Exide battery plant.

Ray Zumwalt, Downs, Kan., has sold his garage to C. D. Roice and G. M. Allen.

The International Tires Sales Co., Webb City, Mo., will open a supply business soon.

J. W. Huntsman, Oregon, Mo., has bought the Oregon Tire and Repair Co. from N. F. Tillery.

J. S. Bane, Ottersville, Mo., has bought the garage of Wesley Cook.

George Smith, New Haven, Mo., has bought the garage of T. F. Kuhn.

Wm. A. Hallabaugh, Cassville, Mo., has bought the garage of H. C. Hingman.

E. F. Howeld, Cosby, Mo., has sold his interest in the City Garage to Earl Devault.

Noble Sigler, Dexter, Mo., has bought out A. A. Culberson's vulcanizing plant.

J. F. Jack & Son, Mound City, Mo., have bought the J. L. Yous Garage.

Carr & Chadd, Joplin, Mo., will open a supply shop.

E. Morgan, Driftwood, Okla., has bought the interest in the Driftwood Garage owned by Walter Andrews, and the firm will be known as the Morgan & Keff Garage.

R. L. Ammerman, Tulsa, has bought the Eclipse Garage.

The Walter-Parks Motor Company, Oklahoma City, has opened a branch at Tulsa.

Lanfair & McIntine, Frederick, Okla., have bought the garage of R. L. Carnes.

Boyer & Paden, Norman, Okla., have bought the garage of J. A. McIntyre.

The Gessel Motor Sales Co., Tulsa, Okla., has moved to its new two-story building at Twelfth and Main.

The Ardmore Motor Car Co., Ardmore, Okla., has changed its style to the Oklahoma Motor Car Co.

The Grandfield Vulcanizing & Battery Works, Grandfield, Okla., has moved to new quarters in the Brown Building on East Second Street.

New Garages

C. S. Thompson.....Mulberry, Kan.
Holt Bros.....Belle Plains, Kan.
A. A. Newman.....Arkansas City, Kan.
Naramore and Pretzer

Cottonwood Falls, Kan.

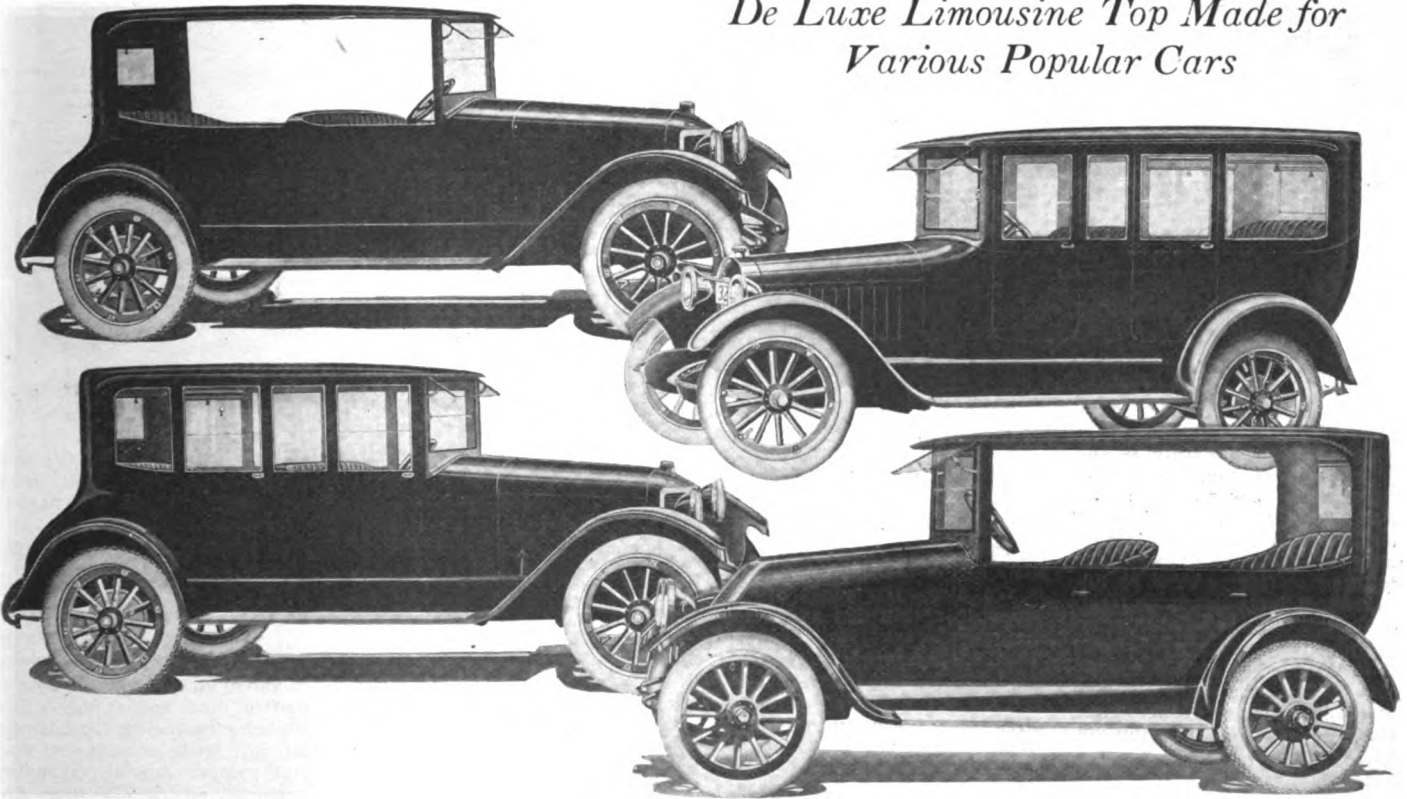
J. P. Klamm.....Paola, Kan.
Republic Garage Co.....Republic, Mo.
E. W. Strasser.....Winston, Mo.
Shipp Motor Co.....Joplin
C. W. McClintock.....Eminence, Mo.
W. C. McElreth.....Coelaman, Tex.
The Hopkins Motor Co.

Sulphur Springs, Tex.

D. D. Lee.....Kemp, Tex.
Geo. Eager.....Tucumcari, N. M.
W. H. Whitfield.....Sherrill, Ark.
S. L. and A. G. Kahn.....Little Rock
A. J. Batchelder.....Jefferson, Okla.
I. N. Phelps.....Beaver, Okla.
H. B. Donthan.....Gotebo, Okla.
Houston Auto Co.....Comanche, Okla.

To Make the Car Cozy for Winter Driving

*De Luxe Limousine Top Made for
Various Popular Cars*



THE Limousine Top Co., Kalamazoo, Mich., is manufacturing a complete series of limousine tops for some of the more popular touring car models. These are designed to meet the requirements of both summer and winter, in winter being completely glass enclosed. When desired side curtains are provided for summer use when the glass or winter panels are removed; or the entire top, glass front and all, may be removed and the regulation top replaced for summer use.

The frame is hardwood with glued and

screwed joints, the rear quarters and deck being of solid construction. The door tops are permanently attached to the car doors and hinged to the side of the top panels so that both operate easily together. Side panels are attached to the top irons of the car without marring.

A standard limousine windshield is incorporated in the top, having lower sections that swing for ventilating purposes. It is equipped with rain vision shield and is attached to the irons regularly supporting the summer windshield.

These tops are furnished in black with

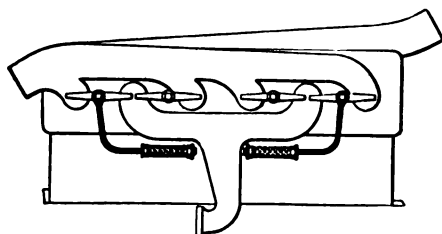
the interior cloth trimmed, and the windows are fitted with roll silk curtains and provided with an electric dome light. The following are the prices for these tops

Make	Model	Price
Haynes.....	38 and 39.....	\$300
Liberty.....	Touring	300
Franklin.....	Series 9.....	350
Premier.....	B 6.....	400
Chalmers.....	35 A.....	275
Chalmers.....	35 B and C.....	300

Accessories

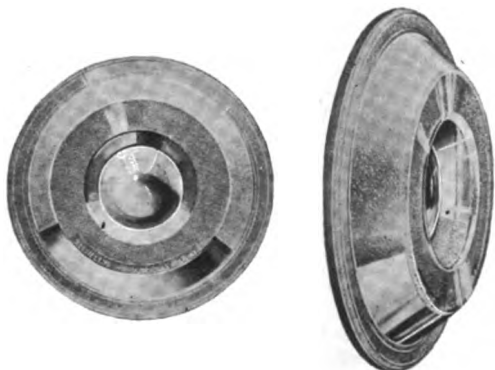
NEW PROCESS VAPORIZING STARTERS

These cold weather starters are malleable steel perforated cylinders filled with a fibrous substance and placed beneath the manifold where they are held by the bolt taps. When used they are simply filled with wood alcohol and lighted, thus heating the manifold and vaporizing the gas. The fire is put out as soon as the engine starts. They are especially adapted to Ford cars, but can be used on any engine with a visible manifold. Price \$2 per set. New Process Mfg. Co., Salina, Kan.



NEW DILLON MULTI-VISION LENS

In this non-glare lens a bull's-eye is placed in the center which concentrates the light and directs it upon the road ahead. Another feature is the projecting face, the lens extending entirely beyond the headlight rim. The clear glass at the bottom is designed to illuminate the sides of the road and to throw an intense beam on the road itself immediately in front of the car. The mottled interior provides the necessary diffusion. It is intended to give a square path of light instead of a narrow wedge-shaped beam. Price, \$3.50. — National Distributing Co., Pittsburgh.



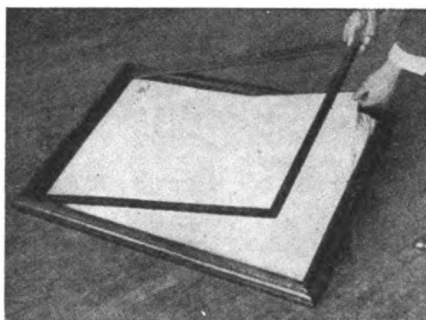
WORKRITE BATTERY HYDROMETER

A hydrometer having rubber collars at each end to protect it against breakage and a slotted rubber washer inside the tube acting as a cushion for the float, and permitting a free flow of the liquid. A combination outfit consists of the hydrometer and a jar for distilled water. List price, hydrometer \$1, combination \$1.50.—Workrite Mfg. Co., Cleveland.



G. L. W. SPRING OILER

Consists of a felt pad with an oil reservoir contained in a metal case which snaps over the main leaf of the spring. The oil is fed along the edges of the leaves in a thin film and automatically works in between them. A flat spring attached to the inside of the reservoir covers the oil hole and excludes dirt.—Auto Specialty Sales Co., New York.

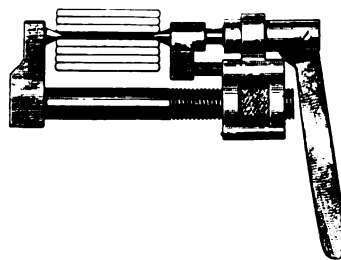


F. H. DRIP PAN

The pan is of wood in which are several sheets of oiled paper held in place by a removable frame. Removing a soiled sheet of paper presents a clean surface at a moment's notice. Price \$5.—Foss Hughes Co., Philadelphia.

WEISE LEAF SPRING SPREADER

A device for facilitating the lubrication of springs. It consists of two wedge shaped members which are forced between the leaves by the action of one stroke of a lever which operates at any angle. Adjustable to springs from 1½ to 2¾ in. in width.—A. F. Weise, Chicago.



CHAMPION SHOW CASE

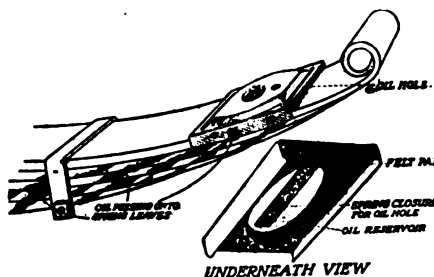
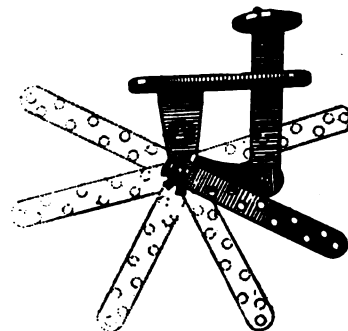
The Champion Ignition Company is supplying to dealers an attractive show case to be used for stocking and displaying AC plugs. This case is 20 in.



wide by 39 in. high and will accommodate 500 plugs. It is substantially made and has an attractive light oak finish.—Champion Ignition Co., Flint, Mich.

PETRY UNIVERSAL PEDAL

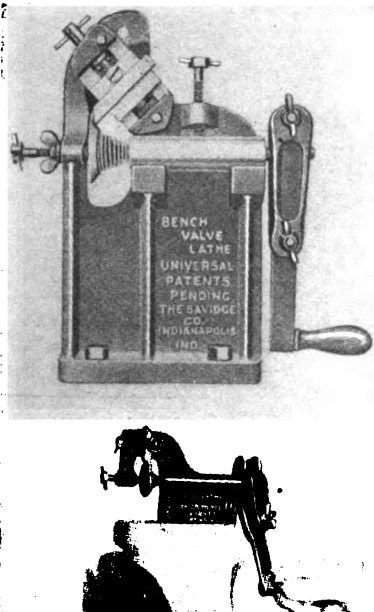
A pedal for muffler cut-out, accelerator, exhaust horn, heater valve, etc., adjustable both to pull or push and at any angle. Its construction is simple and strong. Made of steel with special process gun barrel finish. Price 75 cents.—N. A. Petry Co., Inc., Philadelphia.



SAVIDGE UNIVERSAL VALVE LATHE

A hand-operated valve grinding tool. It is furnished with two steel sleeves for 5/16 and 3/8-in. valve stems, and a high-speed steel cutter ground, ready for use. Additional sleeves for odd size valve stems are furnished when desired. It is designed to take the place of a power lathe for all valve work. A smaller model, known as the Savidge Junior, is made espe-

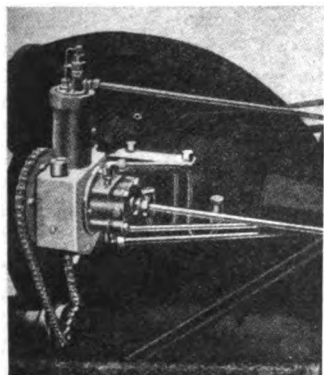
cially for Fords or any valve with a 5/16-in. stem. It may be clamped in a vise or even held in the hand while operated and is carried in the tool box for emergency work. Price of the bench lathe \$10, with extra sleeves at 75 cents each. The Savidge Junior is \$5.—The Savidge Co., Indianapolis.



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TEN EYCK COMPRESSED AIR FORD STARTER

This consists of a single cylinder air pump driven direct from the engine crank shaft by a 3/4-in. diamond roller chain and a tank in which air is stored and retained by a con-



device is also a serviceable tire pump. The pump has a 1 3/4 in. bore and 2 1/4 in. stroke. The tank is 7 x 30 in. and is placed under the car body. The total weight of the complete apparatus is 45 pounds. Price \$60 installed with one year's free service.—Air Device Co., Chicago.

NEAD BALL TIMER

A timer for Fords in which a hardened steel ball is retained in a tool steel tip and supported



trol valve and also by a "night valve" which is closed when the car is not in use. The engine is started by admitting air pressure to the cylinders by a distributing valve timed to operate them in their firing order. A control lever on the steering wheel column governs both the pumping and starting operations. The pump requires 1/4 hp. when in action and will operate while the car is in motion. A pressure gage indicates the condition of the tank. The

BRECO CONVERTER

The current is converted from alternating to direct by means of a step-down transformer

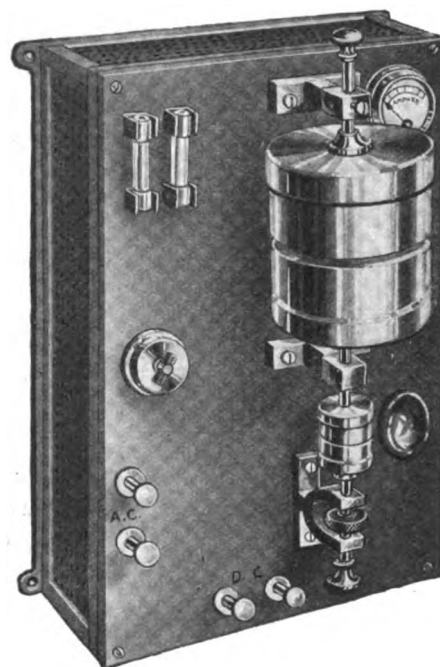


from which the alternating current is brought to a rectifying commutator. Electrically connected in series with the commutator is a graphite arc valve to which the current is shunted by an electric timer at the instant before sparking occurs.—Breco Electric Co., Toledo, Ohio.

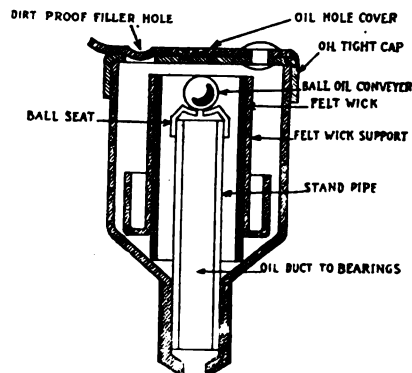
LUBRIK OIL CUP

An oil cup designed to feed only when the engine is running

and adapted to any bearing surface on a moving mechanism, the feeding device being dependent upon the motion of the vehicle. The cup contains a wick surrounding a stand pipe, the latter leading to the bearing. The oil surrounds but does not cover the stand pipe, the top of which is protected by a cap with a small hole normally closed by a loose ball. Any motion of the car throws this ball constantly against the wick and back across the hole, thus con-

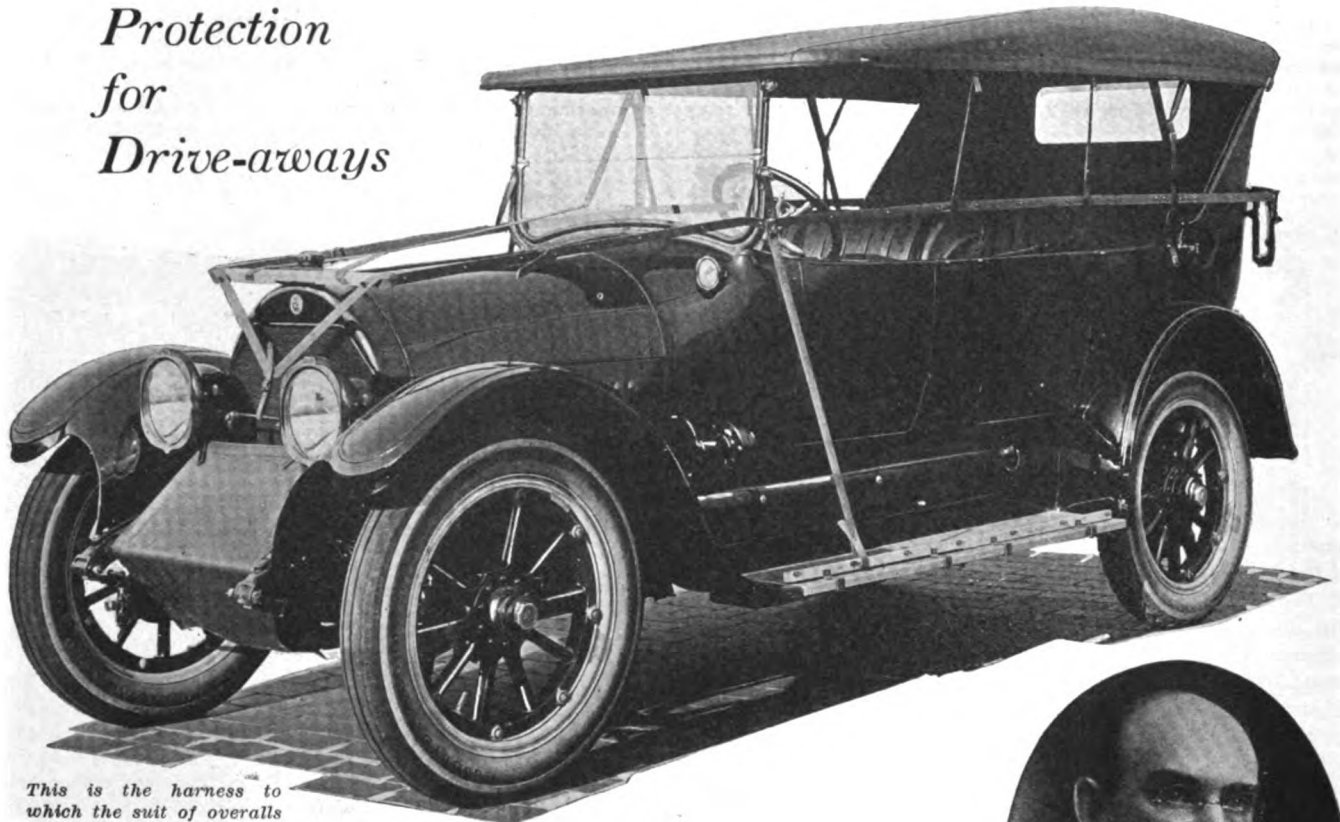


veying small quantities of oil to the stand pipe and thence to the bearing. A self-cleaning filler cap prevents any dirt that the oil may contain from reaching the wick and the cup is filled through a dust-proof spring oil-hole cover. Finished in plain steel, sherardized or nickel plate. Price 50 cents, 75 cents and \$1 respectively.—Warnola Mfg. Co., New York.



Fitting Overalls to Motor Cars

*Protection
for
Drive-aways*



This is the harness to which the suit of overalls is attached

F. S. Bliven drives cars over the road from Detroit to Baltimore and they come through spotless and scratchless regardless of weather conditions. The overalls have solved the problem of protecting cars on the road



F. S. Bliven

BALTIMORE, Feb. 28.—Harness your motor cars with a set of covers for the drive-away from the factory to your showroom, and thus prevent them from being injured on the road. This is what F. S. Bliven, president of the Standard Motor Co. of this city, Cadillac distributor, is doing, and he has a workable plan worked out to save him revarnishing cars after the 700-mile drive from Detroit to Baltimore. For several months Bliven has been driving cars from the Cadillac factory, and always was forced to have them sent to his varnishing department to be fixed up.

The first test of the new plan was completed on Tuesday, when the first set of three cars with the covers arrived, having weathered a blinding rainstorm. In three minutes the harness was taken from the cars, and there was not a spot on the bodies. The drive-away required 4 days, but

can be made in 3 under favorable conditions.

Bliven does not give his drivers any special instructions. He says they are all reliable men and know how to handle cars, and he has been keeping the crew of three on the road all the time. Six days, including the time of leaving from Baltimore until they return, is the time required. He figures that each car costs about \$100, against \$34, the cost by freight.

Covers Are Home-Made

The covers, or harness, as he terms them, were made in his own shop, and the original set of three covers for three cars cost him approximately \$100, figuring material and time at cost.

When folded up, ready to be carried by the men on the train, they weigh 39 lb. each, and make a package the size of a suit case. They can be ad-

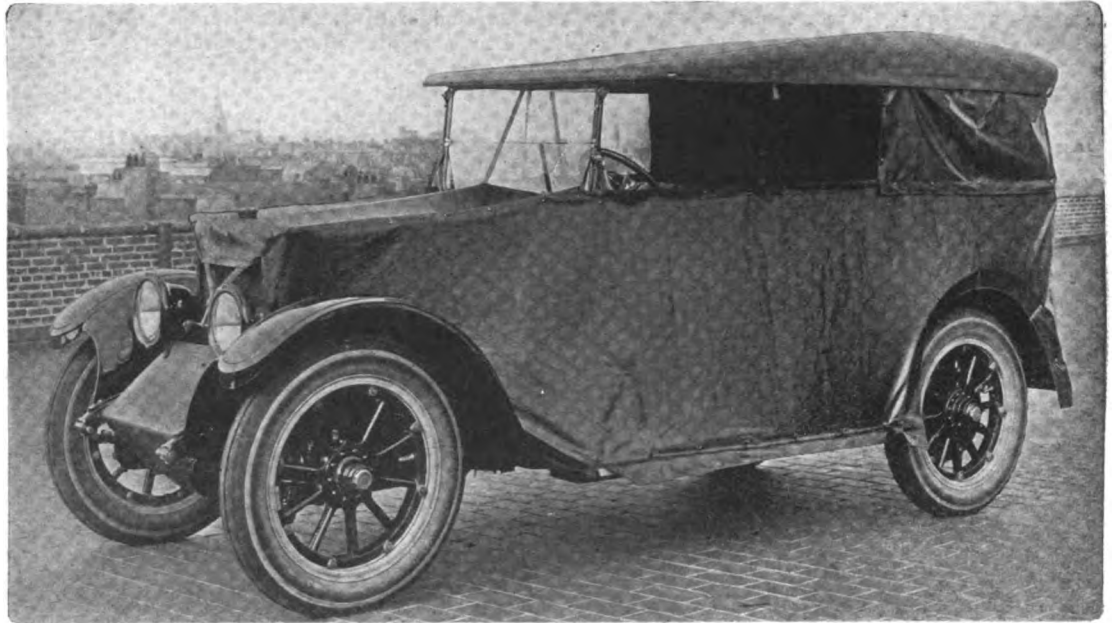
justed in 20 minutes, and are taken off very quickly. The harness prevents the covers touching the body of the car.

Bliven has already received requests from dealers for his plans, and also asked to set a price for furnishing them to other dealers.

A hardwood stick is padded, and extends across the radiator, near the opening, which is kept free. Straps extend from here over the windshield. The strap is made of webbing. The right door is left free, and the driver is able to get in and out of his car because a piece of thin steel, which fits into the socket of the rain curtain holder, is turned over.

The webbing runs around the entire car, and the curtain is hooked to the web straps by catches.

With the suit of overalls in place there is practically nothing of the car exposed that can be harmed by mud or dust. The overalls are easily and cheaply made and can be put on or taken off in a few minutes. When bundled up a suit of overalls weighs about 39 pounds and is no bigger than a suit case



On the runningboards on both sides of the car hardwood boards are fastened and catch with the lower end of the cover. Two straps on each side at the top hold the harness free of the body and keep it from sagging. Separate from the covering that goes around the body of the car is a covering that passes over the front springs and radiator and is fastened to the splash pan. These coverings are made of rubberized top material.

Says Bliven: "Our first drive with the covers shows they have done all we had expected of them, and I think they have proved a very good investment. I say this despite the fact that we have our own finishing department, where many dealers have not."

447 St. Louis Men in Service

ST. LOUIS, Feb. 28—A canvass of the St. Louis motor trade reveals that the automobile industry here has sent 447 men into the military and naval service. The Dorris Motor Car Co. sent 158 men, many of them going on the early call for motor truck repair men and drivers. The local branch of the Ford Motor Co. sent 53. Other figures are: The Chevrolet Co., 25; the Overland Co., 18; Tate-Gilham Co., 20; Hudson-Phillips Co. and Cadillac Co., 15 each; Packard-Missouri Co., 13, and Park Automobile Co., 9

Tractor School Held in Ohio

COLUMBUS, Feb. 28—The first Ohio Tractor School, held at the Ohio State Fair Grounds, the week ending February 16 was a success in every particular. The

fact that nearly 2000 farmers, farm women and others interested in pushing tractors for farm work registered shows the popularity of the school. The school was the result of action of the state officials and particularly the Ohio Council of Defense.

In all more than a score of tractors of different makes were placed at the disposal of the students by manufacturers and agencies. Practical tractor salesmen and mechanics in addition to professors from the Ohio State University acted as instructors.

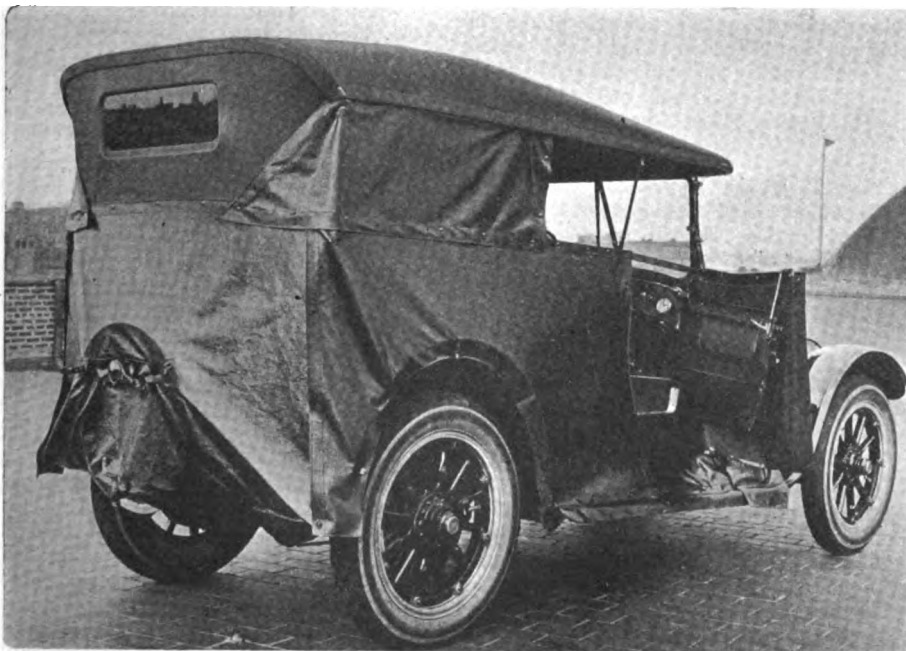
Among the registrants were a dozen women, many of whom were from the farm and desired to become acquainted with the mechanics of tractors. In quite a few instances both the husband and wife were registered.

Sweeney Takes Up Government Training

KANSAS CITY, MO., Feb. 28—The Sweeney Automobile School, one of the largest training schools for young men in the world, and which has a regular attendance of 2100, has been requested by the government to assist in training enlisted men in internal combustion engines and a complete course of mechanics as necessary for the automobile, airplane, motor truck and motorcycle

The facilities of the Sweeney school are perhaps the most complete available for this work. At present the attendance of 2100 represents all states in the Union with the exception of two.

The number of young farmers who are taking courses in mechanics is rapidly increasing. Eleven hundred and two joined the Sweeney school in the month of January. Seven hundred and ninety-six joined in December and the enrollment in February to date is greater than that for the entire month a year ago. The school is running in two shifts at the present time. The present new building, which was occupied some months ago, is not large enough and an annex to add one-third increase in capacity is being started.



A rear view gives a better idea of the completeness with which the car is enclosed by the overalls. Even the fenders and runningboards are protected

Buffalo-Utica Road Bad for Driveaways

Route Good from Middle West to
Albany—Almost Impassable
After Schenectady

NEW YORK, March 5—The driving of passenger cars and trucks to New York from factories in the Middle West by way of the Buffalo-Utica-Albany route is to-day not a practicable proposition, according to R. H. Johnston, New York manager of the White Co., and Charles A. Stewart, manager of the Automobile Dealers' Association, who have just been exploring a part of this route. The conditions observed on this exploring trip were described yesterday by Johnston as follows:

"We found the roads entirely open and in good condition all the way to Albany. The state roads are, generally speaking, in better condition than the pavements in New York. There were two or three places where there were stretches of water on the road to the depth of 18 or 20 inches, but these meant nothing more than that cars and passengers received a good splashing.

The boulevard from Albany to Schenectady was in fair condition, but was covered with several inches of snow in which were deep ruts. Beyond Schenectady conditions immediately changed for the worse. Leaving that city, we started to cross the toll-bridge to Scotia when the toll-keeper warned us that this route was closed and we would have to take a detour. We passed through Scotia without trouble but, on leaving that town, we found the roads completely blocked by deep snow-drifts. Accordingly, we turned back to follow the detour which had been recommended to us. This carried us finally on to the tow-path of the Erie Canal which is just wide enough for two vehicles to pass. The tow-path part of the route is only about seven-tenths of a mile and, beyond that, we followed the road through Rotterdam and then crossed on an iron bridge over the Mohawk River, thus coming back on to the main road on the north bank of the river. This detour from the turn at Schenectady is about 8 miles long. The regulation road between the two points is only about 4 miles. Before proceeding westward, we went back eastward from the bridge over the main road as far as we could go. About a mile beyond the bridge, we found that the river had been up over the road and, on receding, had left enormous cakes of ice piled so high that nothing but dynamite would clear the road. My guess is that it will be about a month before this part of the main road will be open because the spring thaw will undoubtedly result in another inundation of this low-lying section. This means that the detour will have to be depended upon in the meantime.

"Soon after dark, we reached Little Falls, approximately 80 miles from Albany, and here we spent the night. It

had taken us longer to do these 80 miles than it had to cover the 150 miles between New York and Albany. Long before we reached Little Falls, however, we had decided that the driving of cars and trucks over this route for delivery to customers is quite out of the question at this time. Cars and trucks can be brought through but the inevitable damage to the finish of passenger cars and the wear on tires of trucks would be more than the customer would reasonably expect. Possibly, one week from now, or two weeks from now, conditions will be much improved, but the present conditions, as we see them, make advisable some postponement of 'drive-aways.'

"It is difficult for one who has not been out of New York. Over the greater part of the Mohawk Valley the snow is only from 6 to 12 inches deep with deep ruts weaving from side to side. At intervals, there are snow-drifts 4, 5 and 6 ft. deep where a path has been cleared by the men of the government truck trains."

E. A. Bates Made Rayfield Sales Manager

CHICAGO, March 5—E. A. Bates has been appointed sales and advertising manager of the Findeisen & Kropf Mfg. Co. He was formerly advertising manager of the company, and organized the sales campaign for the Rayfield carbureter.

Cannot Control Price of Patented Articles

WASHINGTON, March 5—The prices of patented articles cannot be controlled by the patentee according to a decision just rendered by the Supreme Court. This interpretation of the patent laws was made by the court in answering questions certified by the lower courts in injunction proceedings restraining the Boston Store, Chicago, from selling records in violation of a contract made with the American Gramophone Co. for less than list prices. The opinion is of great importance to retail dealers bound by similar contracts in which the resale price is fixed by the manufacturer.

MacMullen Made Chevrolet Sales Manager

FLINT, March 4—John S. Collins has resigned as sales manager of the Chevrolet Motor Co. He will be succeeded by B. J. MacMullen, who was sales manager of the Chevrolet Motor Co. of Texas, with headquarters at Fort Worth, while J. W. Hawk, assistant to the sales manager of the Chevrolet company of New York, has been appointed sales manager of the Chevrolet company of Texas.

White Co. to Build Additions

CLEVELAND, March 4—The White Company of this city has contracted for additions to its plant which will cost about \$500,000; the Chandler Motor Car Company for additional factory space costing \$120,000. The Peerless company and many of the big parts manufacturers, it is reported, are planning to enlarge their plants. War orders are given as the reason for the expansions.

New England Forming a Trade Association

All Branches of Motor Car Business
to Unite for General Pro-
tection and Benefit

BOSTON, March 4—The motor car men of New England are to organize as the New England Automobile Board of Trade. The movement was started recently and has made considerable progress already during the Boston show this week.

At a luncheon of the New England dealers at the Brnswick to-day the purposes of the association were explained by Temporary Chairman Charles F. Coe and many of the dealers enrolled at \$10 a member. Coe is manager of the Chevrolet branch. The other members of the committee in charge of the preliminary work are: Chester I. Campbell, manager of the Boston show and secretary of the Boston Automobile Dealers' Association; W. C. Bates, Armory Garage; Norman H. Halliday, Mack Motor Truck Co.; W. G. Page, American Motor Equipment Co.

The organization proposes to safeguard the legislative interests of all branches of the trade in the six New England states. General trade benefit and development will be taken up. Dealers, garagemen, accessory men and all branches of the trade will be affiliated, and co-operation with the National Automobile Dealers' Association is planned.

At present there are associations in Boston, Worcester, Portland and several other cities. A territorial organization, however, has never been consummated, although it has been talked of for several years and an attempt at organization was made two years ago. Since that time the need for an association has been several times emphasized.

When enough preliminary work has been done to prepare for permanent organization a general convention will be held, probably in Boston.

Makers Using Interurban Trains

DETROIT, March 4—The few automobile manufacturers who are shipping cars over the interurban lines are doing so only where it is absolutely necessary. Great difficulty is experienced in the loading of them, due to the fact that the electric cars are of the side door type. The manufacturers state, however, that if it were not so difficult in loading their cars they would use them to a greater extent. The Buick Motor Car Company does not ship more than six cars a week via the electric route. The Reo Motor Car Company averages fifteen carloads a week and has been using this mode of shipping for thirty days. This form of transportation permits only of short hauls; when the terminal of the electric is reached the car must be transferred to another line or proceed on its own power. Several cars have been shipped from Lansing to Toledo via Detroit and from there were driven to Buffalo and Rochester.

5,000 Cars and Trucks Sold on Coast Monthly

Business Conditions Pick Up—Expected February Slump Failed to Arrive

LOS ANGELES, March 1.—California has begun the new year by buying motor vehicles at the rate of almost 5000 monthly. Reports from the State Motor Vehicle Department show that 4810 new cars and commercial vehicles were registered during January. February will almost equal this figure.

Improvement in business conditions is very marked. February, regarded by motor car dealers as the slowest month in the year and expected this year to show a great slump, has proved normal. With some dealers it is better even than 2 years ago, when the high-water mark was set for an average. In southern California there has been an enormous influx of tourists, and many of these are buying cars. High-grade used cars are in favor. This is attributed to the fact that these cars can be sold again after a month or two of use at less depreciation than lower-priced new cars.

Better shipping conditions obtain. The embargoes against motor vehicles that were established at Arizona points have been lifted. Cars consigned to Los Angeles distributors were held at Yuma and Phoenix, Ariz., for several weeks. The same condition prevailed for eastern shipments, and distributors here were unable to supply Arizona dealers with cars. The distance and mountain roads made driving cars from here to Arizona points impractical.

With the exception of a very few fast selling lines of cars, there are enough automobiles on hand in Los Angeles to meet the demand for the next 60 days if an absolute embargo on further factory shipments should be imposed. It is estimated by a solicitor for the railroad handling the most automobile shipments received here that there is now in storage in public warehouses in Los Angeles \$4,500,000 worth of motor cars. This does not include the stock of factory branches and dealers who have private warehouses.

To help stimulate selling activity, a convention of motor car salesmen was held recently. Attendance on the part of salesmen was compulsory and more than 300 were present. This was the first time in the history of the trade in this city that anything of the kind has been held.

The meeting was under the auspices of a committee from the Motor Car Dealers' Association. Paid speakers were hired to instill pep. The talks were straight from the shoulder. The theme was to decry the discouraging influence of the war on business. It is believed quite a bit of benefit was derived from the meeting.

Dealers are maintaining their advertising schedules up to the limit. In times past the advertising appropriation has been the first place for retrenchment, but

that has not proved the case this season. If economizing is to be done, it is in other departments. One of the largest distributors is saving \$200 monthly by refusing to permit the use of cars to salesmen even for business purposes at night or Sundays. No exception to the rule is tolerated and in addition no cars are loaned for any reason.

Reduction in the hours of free service allowed is being brought about gradually. One dealer who has been granting 90 hours of service labor has reduced it to 60 hours. The guarantee on parts had been made for one year in the face of the factory's 90-day warranty, but Jan. 1, this year, this guarantee was brought down to six months.

One distributor who paid a sales manager \$4,500 a year has not filled the position since the occupant joined the colors, another officer of the company attending to the duties.

One factory branch that lost a manager drawing \$10,000 a year, because of enlistment, has divided the duties among former subordinates under the direction of a temporary manager who is paid a much smaller salary.

In the shops and mechanical departments many boys have been given employment. Several organizations have adopted the straight commission policy for salesmen without drawing accounts. This can be made to apply only in the case of popular selling cars, owing to the scarcity of high-grade salesmen.

Farmers? Sedans?

Did you ever sell a sedan to a farmer?

Some people say it can't be done.

If you ever sold one to a farmer will you send us a picture of the farmer, in the sedan, in his own dooryard?

With the picture send a letter telling why the farmer says he likes it.

Canada Admits Farm Tractors Free

WASHINGTON, D. C., March 2.—The Canadian Government has issued an order providing for the free admission of farm tractors until Feb. 7, 1919. The order reads as follows:

"Remission and refund of duty is hereby authorized in respect of traction engines costing not more than \$1,400 in the country of production, designed to be moved by steam or other motive power, for farm purposes, and parts thereof for repairs; and traction attachments designed and imported to be combined with automobiles in Canada for use as traction engines for farm purposes, and parts thereof for repairs."

The duties thereby remitted amount to 27½ per cent ad valorem in the case of imports from the United States.

Remarkable Growth in Western Canada Trade

More than 80 Per Cent Increase in Registrations of Alberta, Manitoba and Saskatchewan

WINNIPEG, MAN., March 2.—The year 1917 was the biggest and most progressive in the history of the automobile trade of western Canada. Not only were more cars sold, but the increase in percentage makes the progress of other years look small in comparison.

During the year 66,545 motor vehicles were licensed in Manitoba, Saskatchewan and Alberta. This is an increase of 29,727, or more than 80 per cent over 1916. An increase of 46 per cent over the sales of 1916 was recorded in Manitoba. The figures supplied by the License Department follow:

Year	No.	Year	No.
1908.....	418	1913.....	5,475
1909.....	708	1914.....	6,974
1910.....	1,524	1915.....	8,786
1911.....	2,536	1916.....	11,953
1912.....	4,099	1917.....	17,393

The increase in Saskatchewan has been still greater. The number of license plates issued since 1908 follows:

Year	No.	Year	No.
1908.....	74	1913.....	4,654
1909.....	147	1914.....	8,027
1910.....	531	1915.....	10,225
1911.....	1,304	1916.....	15,654
1912.....	2,268	1917.....	32,562

The Alberta registrations were 5835 in 1915, 9211 in 1916 and 16,000 in 1917.

It is estimated that the average volume of the motor car business last year amounted to \$66,545,000 for the three provinces, and that of the tire and accessory business was at least \$12,000,000.

Republic Truck Prices Advance

ALMA, MICH., Feb. 26.—The prices of all models of the Republic Motor Truck Co. have been increased as follows:

Model	New Price	Old Price
¾-ton truck.....	\$995	\$895
1-ton truck.....	1,295	1,195
1½-ton truck.....	1,650	1,550
2-ton truck.....	1,975	1,885
3½-ton truck.....	2,950	2,750
5-ton truck.....	4,500	4,250

Ford Assembly Plants on Part Time

MILWAUKEE, WIS., March 4.—Operation of the Milwaukee assembling plant of the Ford Motor Co. was greatly reduced on March 1 because of the difficulty encountered in keeping the factory supplied with materials and parts from the main works in Detroit. It is stated that nineteen of the thirty-eight branch plants have been placed on a temporary part-time schedule pending improvement in conditions with respect to supplies. For the time being, it is said, Wisconsin dealers will be supplied from the Chicago and Minneapolis branches.

Columbus Show Partly Automotive in Scope

Farm Tractors Have Prominent Place in Exhibit—Sales Outlook Is Bright

COLUMBUS, OHIO, March 2—The ninth annual show held in Columbus, Ohio, Feb. 27 to March 2, showed the most marked success of any motor car exhibits ever held in the Buckeye capital. The unanimous opinion is that future shows will be held in the spring instead of during the zero winter weather.

There were 72 different cars shown, representing 32 different lines of manufacture.

Because of the smallness of the hall there were no motor trucks exhibited at the 1918 show. But farm tractors could not be denied and there were five or six different makes shown, principally in the lobby and side entrances of the building. These farm tractors attracted more than passing attention, not only from practical farmers but from the city people as well. The lines shown were those intended for the smaller sized farms which prevail in Ohio farming communities.

Figures on attendance were not given out by the management but it is roughly estimated that during the four days of the show there were almost as many people passed through the doors as during the week of the 1917 show.

Retail sales during the show ranged much higher this year than last. One dealer bested his 1917 record by 50 per cent and another went ahead by 33 1-3 per cent.

Business outlook in 1918 is summed up as follows: "We can sell all of the motor cars we can get and then some. In fact there will be two buyers for every light car that is manufactured during the year 1918."

In holding the show no difficulties as to the federal income tax were noted. The admission charge instead of being 25 cents as in previous years was boosted to 30 cents which included the war tax.

Patriotism was the keynote of the show as was attested in the style of decorations employed. American flags and bunting were the features of the decorative scheme. Music was furnished and a cabaret was featured during both the afternoons and evenings.

Interpret Wisconsin Dealer License Law

MILWAUKEE, WIS., March 4—Representatives of dealers' associations in all of the larger cities of Wisconsin and leading dealers in other cities held a conference at the State capital last week with Secretary of State Hull and Attorney-General Haven to solve the perplexing problem of "What may a dealers' license in Wisconsin be used for?" Under the wording of the State motor code as amended at the 1917 legislative session, it appears that the use of dealers' tags is so restricted that a dealer

practically is obliged to take out as many licenses as he has cars. Licenses cost \$25 each per annum. As the result of the conference, it is believed that a satisfactory arrangement will be made for a reasonable interpretation of the law pending another session of the State Legislature, when the code will be clarified.

30 Firms Take St. Louis Used-Car Space

ST. LOUIS, MO., March 4—Thirty firms have taken space in the used-car show which will open in the Exhibit Building a week from to-day, having been moved up one week from the date originally announced. These firms are taking space for an average of seven cars each, and arrangements have been announced whereby exhibitors will be enabled to remove cars each night after the show closes and replace them the next day.

As only two weeks' notice was given for holding the show from the date of the decision, there has been a rush on the paint shops. The rules require that each car be in clean, bright paint and be mechanically perfect. Exhibitors are expecting a good trade and are rushing efforts to have sufficient cars to keep their exhibits up to number daily.

Arizona Dealers See Big Promise in Cotton

LOS ANGELES, March 1—Distributors with territory including the state of Arizona are expecting a promising future from the development of the cotton industry in the Salt River valley and other localities of that state. A number of them have had representatives in Arizona recently to ascertain conditions there and optimistic reports have been made in many instances.

A year ago approximately 20,000 acres were under cultivation for cotton. This year there are 35,000 acres and it is indicated that if there are no setbacks there will be 85,000 acres devoted to this industry before 1920. The long staple grade is produced and it is said to be the equal of the best to be had in any other part of the world.

Labor conditions have been the greatest problem but they have been overcome largely through the action of the United States government in permitting the importation of Mexican peons during the planting and harvesting periods. The Mexicans are brought into the state under bond and the importers are held strictly to account. After the period for which they were permitted to cross the border has expired they must be returned or a new grant obtained.

Arizona is rich in mineral wealth but labor and transportation troubles have caused many mines to suspend operations in recent months and this source of revenue has been reduced greatly. Some copper mines in the locality of Blythe have been abandoned for the present despite the high prices their output would bring if available. Gold and silver production in the Kingman and Oatman district is very low.

Brooklyn Truck Show Forecasts Trade Boom

Only Exclusively Truck Exhibit in New York Proving a Business Booster

BROOKLYN, N. Y., March 5—The first and only exclusively truck show in Greater New York this season opened to-day in the Twenty-third Regiment Armory. Despite war conditions this is a larger show than last year, which was a record breaker. There are 102 chassis on view at this event, representing 32 makers. There are also five styles of Ford adapters, and two booths devoted especially to bodies.

As last year, the great majority of the exhibitors are truck dealers in the Metropolitan territory, and most of these are from New York City. Some Brooklyn dealers are represented and there are a few direct factory exhibits.

The decorations at the armory are the same as those used at the Brooklyn show of last week, described in the Feb. 27 issue of Motor World, except for the fact that there are new signs over the exhibits.

The trucks which are on view include: Atterbury, Autocar, Bethlehem, Chevrolet, Dart, Denby, Dodge, Ford, G. A. Schacht, Hall, I. H. C., Little Giant, Master, Maxfer, Maxwell, Old Reliable, Oneida, Overland, Packard, Rainier, Reo, Republic, Selden, Service, Signal, Sterling, Stewart, Studebaker, United, Velie, Vim and Winther.

Among the converters shown are: Convert-A-Car, Dearborn, Marvel, N. & S. and Union. The Parry Mfg. Co., Indianapolis, Ind., and the Curth Auto Sales Co., Brooklyn, N. Y., are showing bodies.

Expect Record Business

The Brooklyn dealers look for record business at this show because of the war. The growth of motor truck transportation both for long and short hauls as an aid to the railroads, and the need for economy in local deliveries has given a great impetus to commercial vehicle usage.

Scrap Metal Prices

NEW YORK, March 2—Following are prices paid by New York dealers for scrap metals during the past week. They are from Iron Age:

	Cents Per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy	16.75 to 17.00
Brass, light	12.25 to 12.50
Heavy machine composition.....	24.00 to 24.25
No. 1 yellow rod brass turnings.....	13.00 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.50
Lead, tea	5.25
Zinc	6.00

Freight Permits for Automobiles Obtainable

Embargo Placed by Railroads So Modified That Cars Can Be Shipped Part of the Way

NEW YORK, March 1.—The embargo placed upon the handling of motor cars by the railroads early in January has been so far modified that permits may now be obtained through the Freight Traffic Commission for a limited number of carloads when and if freight cars are available.

Dealers are taking advantage of this privilege when they can and are shipping their cars at least part of the way. Permits are frequently granted as far as Newark, N. J., or Poughkeepsie, N. Y., when they cannot be had for the whole distance. All rail shipments are by express, and the time is longer than the normal freight schedule.

Factories within driving distance of New York, and so placed that they can use the Lincoln Highway or the good state roads, are maintaining a regular drive-away service, usually sending cars or trucks in groups of five or six only, on account of the limited hotel accommodations. No regular schedule has been possible as yet, owing to the uncertain weather and the far from perfect condition of even the best roads. When driving is impossible dealers simply have not got the cars. In some cases no shipments have arrived since December.

Four Crow-Elkhart cars were recently driven through from Elkhart, Ind., to New York via Pittsburgh in 5 days. Some have not been so fortunate. It is said that the road from Detroit is full almost to capacity and that many stalled cars and wrecks are passed on the way.

Packard cars and trucks are driving through in considerable numbers—often 15 or 20 a day. Wherever possible, they arrange to load cars on trucks. When not enough trucks are included in the day's drive the cars are driven also. Little or no attempt is made to use the railroads to the eastern seaboard.

Studebaker is now driving all cars East. The last rail shipment left the factory Jan. 1 and has just arrived. Cars are also driven from New York to purchasers in other cities.

Buick is driving in groups of five with a captain for each group, at the rate 20 cars a day. They make 20 to 25 m.p.h. When it is possible some are shipped to Buffalo by boat, and by rail from there. The New York branch has a storehouse at Port Huron for its own use and to relieve factory congestion. The company believes the drive actually improves the cars, as their first work is thus always at the hands of skilled men.

The Reo agency has men constantly on the lookout for possible rail shipments, but expects to drive as soon as the roads improve. They also have a warehouse at Owosso, 40 miles from Lansing, where consignments from the factory are stored until they can be delivered.

The road from Detroit to Pittsburgh is none too good. The section between Toledo and Norwalk is the worst, being badly rutted and muddy. From Pittsburgh the Lincoln Highway is followed most of the way. Even that is getting cut up a good deal. It is also very hilly part of the way. Between Princeton and Rahway, N. J., it is not being used at present, a detour being made via Perth Amboy.

The route from Detroit via Cleveland and Buffalo is longer, but east of Buffalo the road is better, and the large towns along the entire distance are always available in case of trouble. The Mohawk Valley, however, is apt to be flooded over a part of this road in the spring. Such a condition is reported now.

Delaware Predicts 1918 Will Be Best Sales Year

WILMINGTON, DEL., March 1—Adopting every known method of economizing and overcoming difficulties resulting from scarcity of labor, dealers here can see nothing but their best business year ahead of them. Indications, even this early in the year, point to a good demand, notwithstanding increased prices, while the labor situation is acute and transportation uncertain.

The shortage of help has resulted in some of the dealers rejecting all business except their own, that is, that having to do with the cars they represent. This applies to repair and upkeep departments. Floor help is very short, as is also the best skilled help, because of the large inducements offered by the shipyards and munition works, which abound here, and it is necessary in some instances to make out with inferior help and in many instances with inadequate help. However, with such labor saving devices as are obtainable these handicaps are largely overcome.

Local men say they have no banking difficulties; that it is possible to get money for any legitimate need, provided the borrower is substantial, and there is no complaint on this score.

Money was never more plentiful in Wilmington than it is to-day. While this is probably the case pretty much all over the country, because of the large number of shipyards and munition plants in this territory, it is more noticeable here than in many other places. Some of the ordinary shipyard workers are averaging \$50 a week. The result is that there is not only more money, but more people have surplus money than was ever the case before, and many new motorists are going to be the result. The dealers realize this situation and they are putting forth every effort to profit by it, with a most encouraging outlook.

Drive-away 75 Per Cent of Paiges

DETROIT, March 1—The Paige-Detroit Motor Car Co. is re-organizing its drive-away system to send 75 per cent of its production overland. The company is now driving away only 20 per cent.

Trucks and Cars at Coast's Largest Show

120,000 Attend Most Representative Assemblage of 1918 Motor Vehicles

SAN FRANCISCO, CAL., March 1—With a total paid attendance for 9 days, estimated by the management at 120,000 the lights were dimmed on Feb. 24 on what undoubtedly was the largest and most representative assemblage of motor cars and trucks ever housed under one roof on the Pacific Coast.

The Second Annual Pacific Automobile Show sanctioned by the Motor Car Dealer's Assn. of San Francisco, and under the personal management of G. A. Wahlgreen was staged in San Francisco's New Municipal Auditorium and every inch of space was utilized. Passenger cars occupied the entire main floor, including corridors, side rooms and alcoves. In the basement trucks held sway and accessories were exhibited in the U-shaped corridors of the second floor.

No attempt was made by individual exhibitors to feature their displays, as the space between the cars in the passenger class barely afforded walking room; several firms were compelled to accept less space than desired in order that every member of the association might be represented.

Practically every model of passenger cars sold on the Pacific Coast was displayed; several were shown for the first time in this section, among which were the Columbia, Cunningham, Davis, Lexington, Olympian and Roamer.

Cramped quarters marred the truck exhibits. The Pacific Coast manufacturers were represented by the Doane, Hewitt-Ludlow, Kleiber, Moreland, Fageol and Doble steam truck.

Many new devices were revealed among the accessory displays the majority being California products.

Lifting of Embargo Little Help

DETROIT, March 1—The lifting of practically all Michigan and Ohio embargoes has relieved the tight freight situation but slightly. Manufacturers as well as railroads hold that this congestion was caused by the recent most unusual weather conditions—the worst the railroads were ever made to fight—and that as long as a car shortage exists there will be no relief for shippers. The Government is using so many cars in the transportation of grain, munitions, and other necessities of war, that only a small percentage of railroad equipment is available for individual shipping requirements. Most of the cars released by the lifting of embargoes went into Government use. The Ford Motor Co. reports, however, that this new condition has given them an opportunity to divert to the East and South some of the traffic that was formerly, of necessity, going West, making it possible to equalize the distribution of automobiles.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Henry H. Hower, manager of the Willys-Knight division of the Willys-Overland Co., will take the management of a large plant manufacturing navy supplies at New London, Conn. His change of position is only for the duration of the war, when he will return to his former duties with the Willys-Overland company.

P. D. Sampsell has been placed in charge of sales of United States trucks in Indiana, Ohio and West Virginia. His headquarters will be in the Severn Hotel, Indianapolis.

J. C. Schmitz and Robert H. Scott have been appointed district representatives of the Dart Motor Truck Co., Waterloo, Iowa. Schmitz will handle sales in Oklahoma and Texas, and Scott those in New York and Pennsylvania.

Millard H. Newton, who has been connected with the advertising department of The White Co., Cleveland, for 5 years, has been appointed advertising manager.

J. Welch has been appointed Western sales manager of the Fruehauf Trailer Co., with headquarters in Kansas City. He was formerly associated with the Abbott Corp. and the Inter-State Motor Co.

F. H. Burdette, formerly Pacific Coast manager of the Four Wheel Drive Co., Clintonville, Wis., has joined the sales organization of the Hercules Motor Truck Co., Milwaukee. He will have charge of sales on the Pacific coast district.

W. K. Frederick has been appointed sales manager of the Gryphon Tire & Rubber Corp., New York.

L. M. Field, salesmanager of the Frank O. Renstrom Co., San Francisco, has been elected vice-president of the company.

J. B. Howell of the sales department of the Bound Brook Oil-less Bearing Co., Bound Brook, N. J., has entered active service in the United States army, and is now training at Camp Dix.

Rodney K. Haines has been appointed sales manager of the Saxon Motor Co. of New York, Saxon distributor.

E. C. Morse, former vice-president of the Chalmers Motor Co., has been elected vice-president of the Curtiss Aeroplane Co., Buffalo.

Earl R. Martin has been appointed manager of the Templar Motors Corp., Cleveland. He formerly held similar positions with the Curtiss Aeroplane Co., the Rubay Co., the Aluminum Castings Co., and the Chalmers Motor Co., Detroit.

Samuel Schary has been promoted from salesman to sales manager of the H. A. Sanders Corp., New York City, dealer in Case automobiles.

Arthur M. Robbins has been appointed head of the Chalmers New York branch. He was formerly with the Centaur Motor Co., Chicago, distributor of Jeffrey cars.

A. C. Levertan has been appointed factory manager of the Federal Motor Truck Co. He was formerly general superintendent of the Chalmers Motor Co. and factory manager of the Briscoe Motor Corp., Jackson.

J. T. Foster, for many years district representative for the Willard Storage Battery Co. at Kansas City, has moved to Dallas as president and general manager for the Willard Co. of Texas. Mr. Barrett, former

manager, has been promoted and is now at the factory.

Harry L. French, Kansas City, Mo., has taken over the sale of APCO accessories for Fords for the Southwest and he will call on the jobbers with this line, together with the Badger line made by Auto Parts Mfg. Co. of Milwaukee, Wis.

R. W. Mickham, former advertising manager of the Liberty Motor Car Co., and more recently head of the advertising department of the Ford Motor Co. of Canada, is now with the Carl M. Green Co., advertising agency, at the Chicago office.

Lee C. Carlton, for the past 17 months manager of San Francisco branch of Bosch Magneto Co., is now manager of the Chicago branch, succeeding F. D. Norman, who is now factory manager at Springfield, Mass.

Porter E. Stone, formerly a member of C. Stone & Sons, body builders, Chicago, has become connected with the West Mfg. Co., making propellers and laminations for struts.

Oscar Sontag, recently manager of Forest Park Highlands, the largest summer garden in the city, has joined the staff of the De Luxe Automobile Co. of St. Louis, in the Oldsmobile department.

Arthur K. Snowden, the new general manager of the Park Automobile Co., St. Louis,

resigned a partnership in the law firm of Snowden & Snowden to re-enter the motor car field. He formerly was a zone manager for the Maxwell factory.

John Kennedy has been appointed director of social education of the Reo motor Car Co., Lansing, Mich.

Lieut. Gerald Fitzgerald has been promoted to the rank of major and is reported to be somewhere in France. He was formerly manager of the Minneapolis branch of the Remy Electric Co., later selling the Marmon and Stewart trucks.

Beckwith Havens, who until recently was foreign representative of the Denby Motor Truck Co., Detroit, now is a lieutenant in the naval aviation service.

Major Harry Shepler, who is in charge of production for the aviation section of the signal corps, has moved his offices to Cleveland from Washington, where he will be in charge of production supervision for the aviation department. Major Shepler was formerly vice-president of the Willys-Overland Co. at Toledo.

Charles S. Dahlquist, now in charge of axle inspection for the motor transport section of the quartermaster's corps, has been promoted to major. He formerly was engineer of the Timken-Detroit Axle Co.

Burlington Receipts To Red Cross

BURLINGTON, IOWA, Mar. 1—The Burlington Show opened yesterday to good sized crowds. The bad weather kept many people from attending the first day, but with the more settled weather to-day the interest in the exhibits is increasing.

Over fifty cars valued at more than \$100,000 are shown on two floors of the new Woellhaf Garage on Third Street. Eleven firms are showing 16 different makes of automobiles and several of the cars shown at the New York City show are on the floors. The building is decorated in patriotic colors and an orchestra plays every afternoon and evening. The proceeds of the show will be given to the

local chapter of the Red Cross, therefore no war tax will be paid by the public.

Among the firms exhibiting at the show are the following: M. R. Vaughn, Paige and Saxon; Overland Burlington Co., Overland; J. B. Sutter Auto Co., Maxwell cars and truck; Farmers Motor and Supply Co., Buick; Sheagren Hunt Co., Oldsmobile, Dodge cars and truck; B. F. Forbes Sales Co., Studebaker and Cadillac; J. W. DeWein Co., Chevrolet and Chandler; Osborn Garage, Kissei cars and truck; Ed. Rheinschmidt, Glide; Thorp Auto Co., Elkhart; Iowa Motor Co., Elgin; Robt. Donahue Hardware Co., accessories; Hodges Battery Works, Columbia batteries; Murer Battery Works, the Willard line.

Motor Securities Quotations

	Bid	Asked		Bid	Asked
*Ajax Rubber Co.....	53	55	*Maxwell Motor Co., Inc., com..	28	29
*J. I. Case T. M. Co., pfd.....	82	86	*Maxwell Motor Co., Inc., 1st pfd.	60	63
Chalmers Motor Co., com.....	5	8	*Maxwell Motor Co., Inc., 2d pfd.	22	24
Chalmers Motor Co., pfd.....	30	40	Miller Rubber Co., com.....	133	137
*Chandler Motor Co.....	85	89	Miller Rubber Co., pfd.....	95	98
Chevrolet Motor Co.....	118	120	Packard Motor Car Co., com....	93	98
*Fisher Body Corp., com.....	26	33	Packard Motor Car Co., pfd.....	92	95
*Fisher Body Corp., pfd.....	80	87	Paige-Detroit Motor Car Co.....	19	21
Fisk Rubber Co., com.....	50	53	Peerless Truck & Motor Corp....	17½	18½
Fisk Rubber Co., 1st pfd.....	98	103	Portage Rubber Co., com.....	111	113
Fisk Rubber Co., 2d pfd.....	70	75	Regal Motor Car Co., pfd.....	..	..
Firestone Tire & Rub. Co., com..	96	98	Reo Motor Car Co.....	17	19
Firestone Tire & Rub. Co., pfd..	98	100	*Saxon Motor Car Corp.....	9½	10½
*General Motors Co., com.....	116	118	Springfield Body Corp., com....	..	..
*General Motors Co., pfd.....	83	85	Springfield Body Corp., pfd.....	..	..
*B. F. Goodrich Co., com.....	43½	45½	Standard Motor Construction Co.	12	13
*B. F. Goodrich Co., pfd.....	94	100	Standard Parts	65½	69½
Goodyear Tire & Rub. Co., com..	136	139	*Stewart-Warner Speed. Corp....	54½	56½
Goodyear Tire & Rub. Co., pfd..	99	100	*Studebaker Corp., com.....	47½	48½
Grant Motor Car Corp.....	2	3	*Studebaker Corp., pfd.....	93	96
Hupp Motor Car Corp., com.....	3	3½	Swinehart Tire & Rubber Co....	..	35
Hupp Motor Car Corp., pfd.....	78	83	United Motors Corp.....	25½	25½
International Motor Co., com....	16	19	*U. S. Rubber Co., com.....	56½	58½
International Motor Co., 1st pfd.	40	45	*U. S. Rubber Co., pfd.....	98	103
International Motor Co., 2d pfd..	16	20	*White Motor Co.....	42½	43½
*Kelly-Springfield Tire Co., com.	46	47	*Willys-Overland Co., com.....	18	19
*Kelly-Springfield Tire Co., 1st pfd.	77	85	*Willys-Overland Co., pfd.....	80	82
*Lee Rubber & Tire Corp.....	15	16	*At close March 2, 1918. Listed N. Y. Stock Exchange. †Par \$10 per share.		

Plan Truck Expresses From Farm to Home

Highway Transport Committee Scheme Would Relieve Rail- roads of Food Carrying

WASHINGTON, D. C., March 1—Considering the shortage of foodstuffs the greatest problem of the near future, the Highway Transport Committee, headed by Roy Chapin, has worked out a plan for rural express services from farms to cities wherever practical. The committee has made an especial study of the conditions in Maryland and surrounding Washington and is arranging for rural expresses for transportation of food for the new 100,000 inhabitants of the Capital. A national survey has been carried on in co-operation with the Department of Agriculture and the Food Administration. Questionnaires have been sent to farmers and to operators of rural express systems in Maryland and nearby resulting in important replies. A blue print hanging in the office of Mr. Chapin shows the complete chart of the service in Maryland, displaying the auto truck routes from Washington to Germantown, Latonville, Redland and Ashton, operating an aggregate of 93 miles, using 7 trucks making a total daily mileage of 286 miles. Out of Baltimore there are 14 such routes aggregating 1192 miles daily. The good roads of Maryland are one of the factors that stimulated the service there. Maryland has 1500 miles of good roads of which 300 miles are used for rural express systems.

The questionnaires sent out resulted in urgent requests by farmers for better roads. Many stated they would go out of business if they do not have better roads to help them get their produce to market. The replies also showed that the trucks not only haul the goods to market but aid to bring other merchandise back to the farmers from the city merchants. As an example of the work done, one man operating rural service brings 400 gallons of milk and cream daily to Washington. Recently he also hauled 827 bu. wheat to Rockville, Md. He hauled 200 barrels of corn from the field to Washington in 7 days, and his hauls include eggs, poultry, fruit, potatoes and calves, and on his return trip he takes coal and other merchandise back from the city to the farmer. One farmer near Baltimore reported that in addition to his regular route service the operator in his district also handled for him 100 live hogs, 200 live sheep and 800 bu. wheat and brought back to the farm 190 tons of fertilizer, 80 tons of lime, 65 tons of building sand and 70 tons of coal.

Mr. Chapin discussing the situation reported: Mr. Hoover refers to corn and potatoes rotting because they cannot be moved. Tours through Maryland show exactly that condition because farmers cannot get their produce to railroad stations for shipment.

The Maryland rural express systems are regulated by the public service commission. The State Highway Commissioner of Maryland and the State Highway Commissioner of Virginia are preparing maps and routes showing how Washington can be served as Baltimore is, as is outlined in the chart displayed herewith.

Motion pictures have been taken of the rural express service of Maryland and will be displayed throughout the country to stimulate other sections into similar activity.

Olympian Making New Model Cars

PONTIAC, MICH., March 2—The Olympian Motors Co. has orders for 500 of its new model cars and expects to begin production on this model by March 25. The last of the old model cars was shipped a few days ago.

Goodyear Adds Cord Patch

AKRON, OHIO, March 1—The Goodyear Tire & Rubber Co. is placing on the market a cord patch for repairing inside breaks and injuries in cord tires. The patch is built of several layers of cords, the same construction being used as in cord tires. Edges are tapered to prevent tube chafing and the patch is inserted in the same way as an ordinary blowout patch, the surface in contact with the shoe being skim-coated with a layer of uncured gum. The patch is made to fit all sizes of cord tires.

Kemp Gets Kokomo Products

NEW YORK, March 1—William E. Kemp has been appointed New England distributor for the products of Byrne, Kingston & Co. and the Kokomo Electric Co. A stock of repair parts will be maintained at 1731 Broadway, New York, and also in a Boston service station, which is soon to be established.

Tractors Feature Portland Show

PORTLAND, ORE., Feb. 28—The Ninth Annual Automobile Show held under the auspices of the Motor Car Dealers' Assn. of Oregon had the distinction of being the first show on the Pacific Coast at which tractors were exhibited.

Official figures show 17,500 paid admissions. Visitors came from as far East as Spokane and as far North as Victoria, B. C. The interest was not purely local but extended to every section of the Pacific Northwest.

Wholesale dealers' contracts for the Daniels, Briscoe, Olympian, Roamer and Stearns-Knight were closed at the show and the total business transacted represented \$680,000, divided as follows: Passenger cars \$430,000, motor trucks \$150,000 and tractors \$100,000.

The exhibition was under the management of M. O. Wilkins, secretary of the association.

Would Unionize Shops But Run Against Snag

Bloomington Dealers Don't Object but Would Hire and Fire Whom They Please

BLOOMINGTON, ILL., March 1—An effort is being made to form a union of the mechanics and helpers employed in the garages here. Agitators from Chicago have been endeavoring to promote such an organization but great difficulty has been experienced in classifying the men according to ability. Intimation was given that a closed shop would be one of the demands when the union was formed and that any employer who refused to accept such an agreement would be subject to boycott. The dealers have voted to stand together and ignore such a demand and, while not objecting to the formation of the union, they will pay what they please and employ whom they please. It has been the policy to pay mechanics and helpers in proportion to their worth, and, due to the scarcity of first class mechanics, dealers have been handicapped in keeping up with repair work in their respective establishments. It is presumed that similar agitation in the direction of union organizations will be carried on in other cities of the middle west.

75 Ford Tractors a Day

DEARBORN, March 1—Henry Ford & Son is now building 75 tractors a day and within 30 days will double its production. The order for 1000 tractors to be sent the Canadian government will be completed by April and the company has an option on 1000 more for Canada. After these needs are supplied there is a question as to where the next production will be sent. Henry Ford is aiming to send his tractors where they are most needed, and in all probability he will send the subsequent production to New England or Maryland where the farms are more depleted of labor than the west. He believes that from an economic standpoint it is better to help the eastern farmers at the present time as it saves transportation charges in shipping grain to the sea-board.

Brown Again Heads New York Dealers

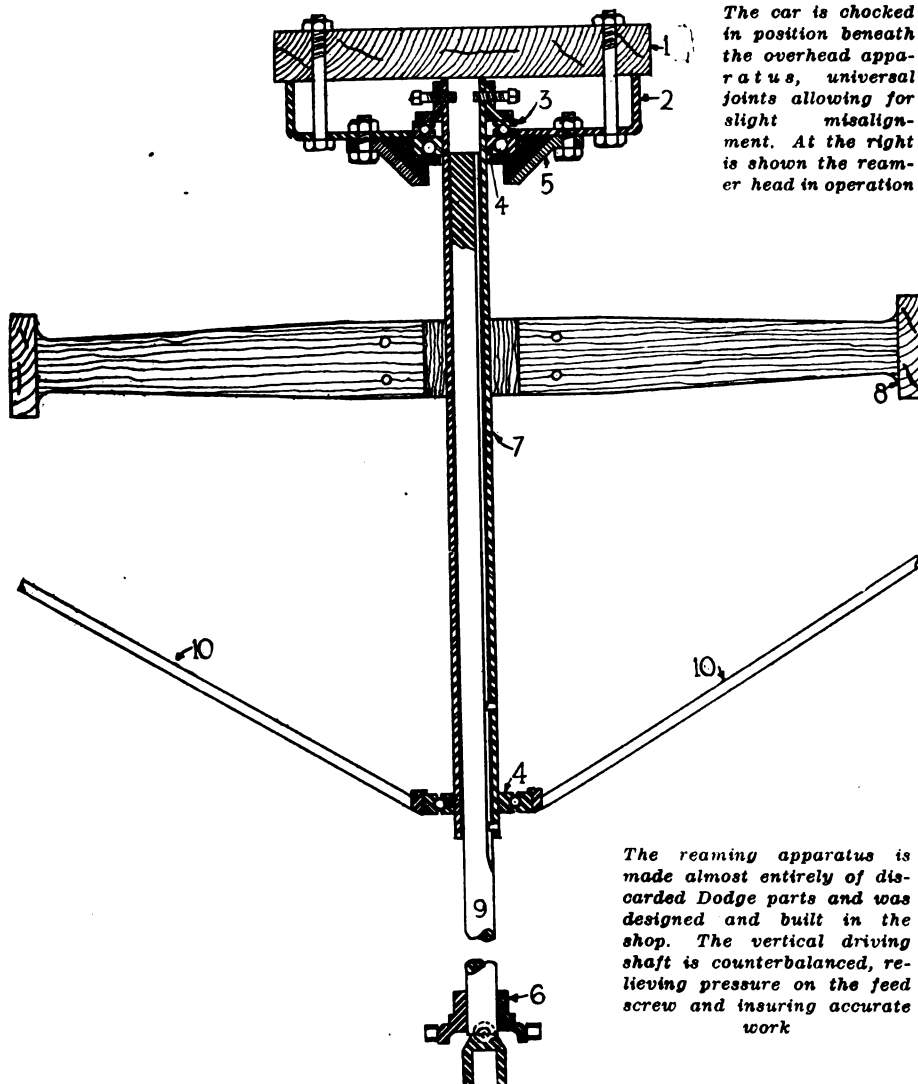
NEW YORK, March 1—All the officers of the Automobile Dealers' Assn., Inc., were re-elected at a meeting of the board of directors last week, C. M. Brown (Winton Co.) being president; William C. Poertner (Poertner Motor Car Co.), vice-president and William Parkinson (Stutz Motor Car Co.), treasurer. The previous week a new board of directors was elected as follows: The officers and Frank Carrie (Marmon New York Co.), Harry De Bair (Maxwell Motor Co.), E. S. Hare (Packard Motor Car Co.), R. H. Johnston (White Co.), Charles E. Reiss (Charles E. Reiss & Co.), A. G. Southworth (Buick Motor Co.), Walter A. Woods (Van Cortland Vehicle Co.).

Reaming a Cylinder in Four Minutes

Home-made Equipment Has Cut the Time of the Job Down from One Hour

ONE month ago it took the Colt-Stratton Co. a full half hour to ream one cylinder, and that was pretty good time. Now they do it—and do it better—in four minutes. They have devised and are using a power-driven cylinder reaming device that has wholly replaced the hand method in their service station, and which reams a block of four cylinders in 30 min. from start to finish of the job. The actual time occupied by the reaming tool in making a complete cut through a cylinder is just 4 min. and 1½ min. more suffices to back out the screw.

The adaptation of power drive to the Universal reaming tool was made by Wm. McIlvrid, Jr., service manager. He not only saved some two hours on each reaming job of four cylinders and that much hard labor on the part of a mechanic, but the continuous motion of the tool, without the constant stoppages unavoidable in hand work, insures a smooth



The car is chocked in position beneath the overhead apparatus, universal joints allowing for slight misalignment. At the right is shown the reamer head in operation

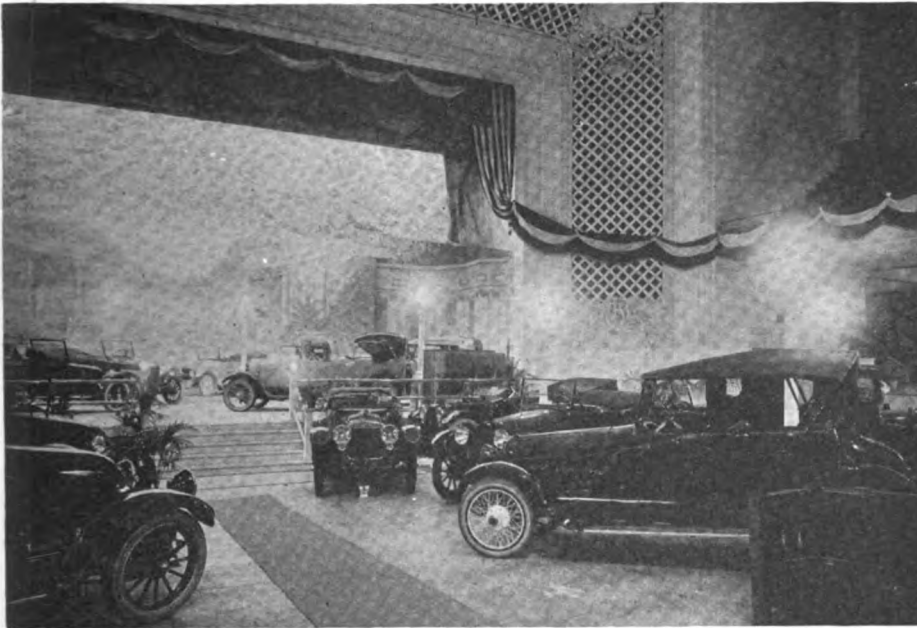
The reaming apparatus is made almost entirely of discarded Dodge parts and was designed and built in the shop. The vertical driving shaft is counterbalanced, relieving pressure on the feed screw and insuring accurate work

cut and hence a surface free from inequalities from end to end.

In performing the operation the car is placed beneath the shafts and the wheels blocked fore and aft. When the first cylinder is finished the car is moved forward and blocked again. The whole operation is simplicity itself.

The vertical driving shaft is counterbalanced through a Timken thrust bearing by means of a steel cable and counterweights, thus removing any downward pressure on the feed screw of the reaming tool, which, if it were compelled to carry the weight of the driving shaft, would cause excessive wear on the guide nut through which it operates.

The device abolishes one of the most laborious operations of service station practice and greatly lowers the cost of the job while increasing its efficiency and accuracy.



Passenger car exhibit of the Portland motor car show, held February 13

Colt-Stratton Produces New Motor Truck

THE Colt-Stratton Co., New York Dodge dealer, has a new way to extend its business. The Dodge $\frac{1}{2}$ -ton commercial car has a field of its own, but in order to provide a heavier vehicle this dealer has produced a motor truck by combining the standard Dodge Bros. chassis with the Graham truck body and tractor attachment.

The Dodge chassis, as received from the factory, is turned over to the Graham Brothers' shops, where the frame is cut in two and the after part returned to the Colt-Stratton parts stock room. There is a salvage of about \$200 on this material.

The truck frame is then attached to the forward part of the Dodge chassis. The Graham attachment includes the rear wheels, truck frame, body and cab, and, in the case of the tractor, a universal fifth wheel adaptable to any truck body.

The Colt-Stratton Co. is now showing

a $1\frac{1}{2}$ -ton truck with 140 in. wheel-base which sells for \$1,490, including cab and stake or express body, and a 3-ton and 5-ton tractor at \$1,410.80 and \$1,616.80, respectively. The regular Dodge starting and lighting equipment is retained and the prices include freight to New York and the war tax.

Savannah Dealers Organize

SAVANNAH, GA., Feb. 28—Savannah dealers have organized the Savannah Automobile Dealers' Association, with C. E. Vinson, head of the C. E. Vinson Motor Co., as president; L. H. Dimmitt has been elected secretary and treasurer. The first act of the new organization was to vote to support the automobile show which is to be held in Savannah during the week of April 16 to 20. They will undertake to make this show one of the important events of the year. The dealers who were represented were: Cadillac Motor Co., Chatham Motor Co., Savannah Marmon Agency, Hudson Sales Co., J. C. Lewis, H. A. Jacobs, W. J. B. Adams, Savannah Paige Co., R. S.

Brown, S. N. Harris, H. M. Garmany, T. A. Bryson, V. Seyden, Studebaker Co., J. Morgan Co., J. T. Grantham, Savannah Motor Co., W. K. Bache, Varn-Johnson Co., P. S. Bacon.

All Fliers Must Be Licensed

WASHINGTON, March 5—President Wilson has issued a proclamation forbidding anyone to ascend in an airplane or balloon without a license issued by a joint Army and Navy board of aeronautics. The order especially prohibits flying over or near naval or militia camps or stations. Those disregarding the order will be considered hostile and fired upon.

Aluminum Price Made 32 Cents

WASHINGTON, March 5—President Wilson has fixed the maximum base price of aluminum at 32 cents per pound subject to revision, June 1. This applies to lots of fifty tons or over.

\$450,000,000 More For Aircraft

WASHINGTON, Mar. 5—The War Department yesterday asked Congress for an additional appropriation of \$450,000,000 for the aviation service.

Sub-Chaser Plant for Ford

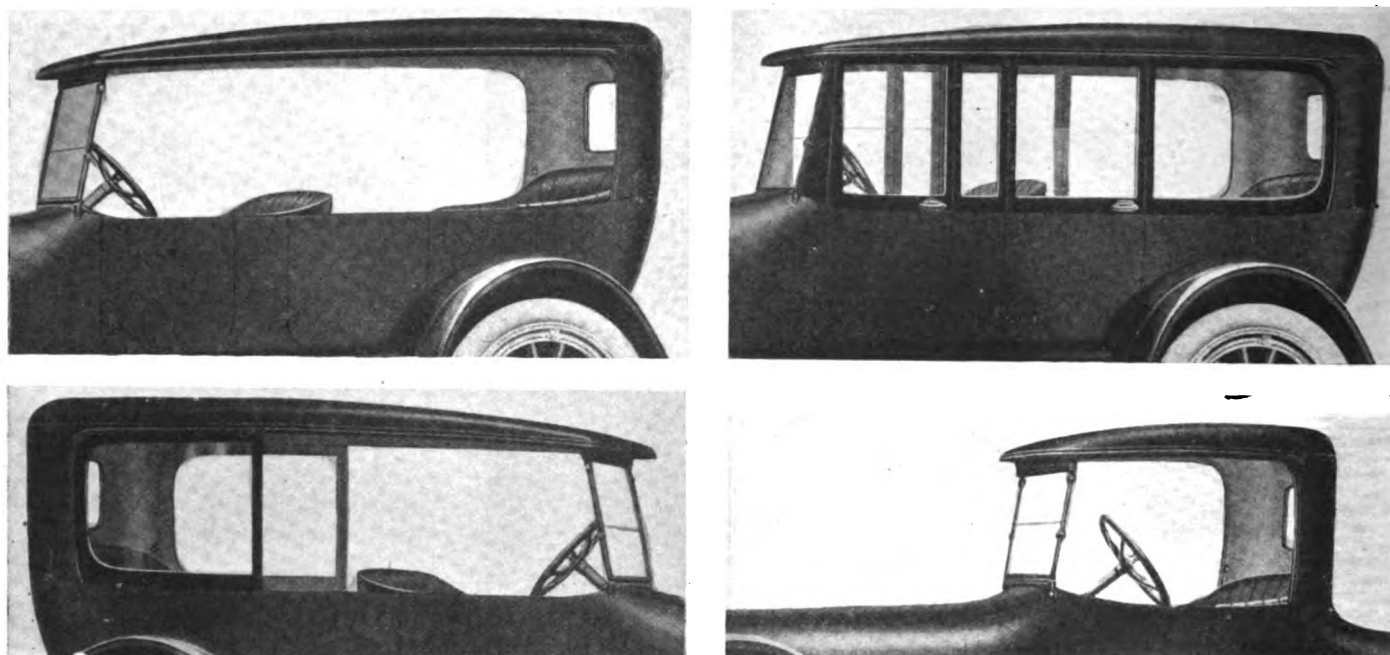
WASHINGTON, Feb. 28—The Ford Motor Company will build a large ship-building plant at the River Rouge, near Detroit, to manufacture submarine chasers. The buildings will cover 5 acres, be completed in May and employ 15,000 men. It is planned to launch the boats in a canal at the plant and take them to the Atlantic Ocean via the Detroit River and the Great Lakes.

Manage for Tri-City

DAVENPORT, IA., Feb. 28—V. G. Kropf, manager of the Firestone Tire Co. Davenport branch, was elected commissioner of the Tri-City Automobile Trade Assn. last night. He will resign as manager of the Firestone branch and devote his entire time to looking after the interests of the automobile dealers in the tri-cities—Rock Island and Moline, Ill., and Davenport, Iowa.



Motor truck produced by combining a Dodge Bros. chassis, Graham attachment and King trailer



Appearance of Rex all-season convertible tops: Above—left, top open; right, closed. Bottom—left, partly inclosed; right, coupé top open

Rex Develops New All-Season Convertible Tops

The Rex Mfg. Co., Connersville, Ind., has developed some new all-season convertible tops in coupe, sedan and roadster types. The side sections are removed bodily when the car is prepared for summer use, thus lessening the dead weight.

The door windows have upper glass panes held by non-rattle screw fasteners, and slide in velvet-covered channels. Rubber bumpers are provided on which both top and bottom glasses rest. With all windows removed the sides are wholly unobstructed.

The top is specially designed to harmonize with the body lines of the make of car with which it is used, though its mechanical features and general appointments are standard. The door and outer sections are held in position by attaching irons. When these are removed the holes are covered by leaving the plates in position, where they are firmly held by the cap screws.

The Rex top is built of hard wood, mitred and mortised and iron braced. The back and the rear section of the roof are reinforced with sheet steel. The water-proof fabric cover overlies a layer of wadding and the whole is finished for all-weather service in any specified color. The interior finish is made to match the upholstery of the car.

A special patented latch, used with the exterior coach handles, enables opening doors from both inside and outside when the car is entirely enclosed.

The shipping weight of the Rex all-season top for the average five-passenger car does not exceed 440 pounds.

Wisconsin Duplex to Start March 15

OSHKOSH, WIS., Feb. 28—The Wisconsin Duplex Auto Co., organized a year

ago with \$500,000 capital by William A. Besserlich, one of the original members of the present Four Wheel Drive Automobile Co., Clintonville, Wis., has completed all details of its organization as an Oshkosh concern. At the annual meeting held in Oshkosh, the board of directors was reorganized to give Oshkosh capital full representation. Officers were elected as follows: President, W. A. Besserlich; vice-president, H. F. Landeck; secretary, B. A. Mosling; treasurer, J. P. Mosling; director, W. G. Maxcy. The company has taken over the plant of the J. L. Clark Carriage Co. in Oshkosh and will install much new machinery and equipment at once. The company will concentrate on a one-ton truck chassis employing an improved quadruple drive transmission system designed and patented by Besserlich. Arrangements are being made with a view of having the chassis in production by March 15 or April 1.

Federal Business Tops \$6,000,000

DETROIT, Feb. 28—According to a statement issued by the Federal Motor Truck Co., the total business done by the company amounted to \$6,005,000 for the fiscal year ending Dec. 31, as compared with \$4,261,000 for 1916. The assets include \$43,000 cash on hand, \$169,174 securities, \$597,689 accounts receivable, \$537,983 plant accounts, and \$1,632,701.27 manufacturers' inventory. Notes payable approximate \$507,500 and accounts payable \$420,000. A fund of \$225,000 has been set aside for excess profits tax and a reserve charged for depreciation of \$110,391. The total surplus of the company is now \$698,993, having added \$456,826 to the surplus. The total production of trucks this year was 2918 as against 2442 last year. Unfilled orders on the books will total approximately \$4,000,000, consisting of 300 foreign orders, 1100 domestic orders and 700 special government trucks.

Big Tractor Display at Quincy Car Show

QUINCY, ILL., Feb. 28—The tenth annual motor car show of the Quincy dealers opened Wednesday, Feb. 20, and closed on the 23d. Attendance reports were highly satisfactory. Every one of the seventy-one spaces upon the floor of the Armory was taken. There were five exhibits of trucks and tractors as against three last year. The dealers here believe that the net value of the show as an advertising proposition will be fully up to that of former years, as the attendance and interest has shown no decline.

Expect Heavy Buying by Farmers

A greater interest is shown in tractors than ever before, due to the ever-increasing scarcity of farm labor and the necessity for substituting trucks and tractors. Quincy caters to a large farming element, taking care of the western Illinois, northeastern Missouri and southeastern Iowa districts. As the farmers are uniformly prosperous, due to the high price of grain and stock, it is confidently believed that they will invest heavily in tractors and passenger cars this season.

Quincy is also the possessor of many factories, the employees of which have been given increased wages and who are in a better position than ever before to invest in a passenger car. The general opinion is that the lower-priced cars will be in demand, ranging from \$400 to \$1,000. There are few inquiries for cars above the latter figure. Dealers and salesmen are optimistic. The blizzards and unusually cold weather of December and January created a feeling of pessimism at the time, but this has all disappeared and the outlook is now thought to be encouraging with the coming of milder temperature.

Falls Gets Government Order

SHEBOYGAN FALLS, WIS., Feb. 28—The Falls Motors Corp. has a Government contract for 2000 motive power units for military trucks, deliveries of which are to begin early in March. Upon the completion of the order, additional contracts will be placed which will require the operation of the plant at maximum capacity until the summer of 1919. It is stated that the initial lot of 2000 motors will be shipped to the Kissel Motor Car Co., Hartford, Wis., which is executing a large contract for military trucks.

Canadian Young Carburetor Company

TORONTO, Feb. 28—The (British) Young High-Velocity Carburetor Co., Ltd., has been incorporated with a capital of \$250,000 by Henry H. Davis, Edward H. Brower, Lawrence A. Landriau and others. The company will manufacture carburetors, automobile accessories and machinery.

Regal in Receivership

DETROIT, Feb. 28—The Regal Motor Co. has been placed in the hands of a

receiver. At a meeting of stockholders held yesterday, it was decided to try and resume production in a short time. As soon as an inventory is taken, the creditors will be called together, and it will be decided whether to liquidate or continue. The Securities Trust Co., Detroit, which has been appointed receiver, believes that at the inventory enough assets will be revealed to warrant continued operation. The assets of the company are \$1,500,000, and the liabilities, exclusive of contingent liabilities, amount to only \$600,000. It is possible that the receiver may buy the business and maintain it until recapitalization is accomplished

Firestone Film to Stop Waste

AKRON, OHIO, Feb. 28—The Firestone Tire & Rubber Co. has produced a propagandist motion picture play entitled "Over the Roads to War." This is intended to demonstrate the importance of rubber in the war and to prevent waste. The film shows the simple errors in driving that cause the waste of enough rubber yearly to equip 100,000 fighting motor cars, and has been endorsed by the Government for its contribution to national thrift.

Delay 1918 Tractor Demonstration

KANSAS CITY, Feb. 28—The question of definite arrangements for the 1918 tractor demonstrations by the National Implement and Vehicle Assn. has been delayed by the committee which has this work in charge. The committee held a meeting here recently and decided that because of the congested conditions of the railroads and the uncertainty of securing adequate railroad equipment for shipping tractors, it was impossible to decide definitely on any demonstration. No time nor place for holding such demonstration has been selected yet, although it has been decided to hold a tractor demonstration under rigid rules so that complete information regarding the performances of the different machines can be had and an official report published. If conditions change, and demonstrations are possible, they will be held.

It is certain that the demonstrations will not go to Fremont, Neb., this year as they have in past years. Cleveland has been discussed as a probable center for the demonstration, but it is very questionable if sufficient land can be secured for plowing. Sentiment is strongly in favor of a demonstration because of the active market conditions.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Boston, Mass......Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel.....Feb. 27
Chester I. Campbell, Mgr.

Lyons France.....Third Sample Fair.....Mar. 1-15

Pittsburgh, Pa......Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.Mar. 2-9

Boston.....Boston Automobile Dealers' Association, Mechanics' Building. Chester I. Campbell, Mgr.Mar. 2-9

Utica, N. Y......Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.Mar. 4-9

Clinton, Ia......Clinton Automobile Dealers' Assn., Coliseum.Mar. 6-9

Mason City, Ia......Annual Car and Truck, Automobile Dealers' Assn.Mar. 6-9

St. Joseph.....St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.Mar. 6-9

Watertown, N. Y......Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.Mar. 6-9

Cedar Rapids, Ia......Cedar Rapids Auto. Trade Assn., Auditorium.Mar. 11-16

Fargo, N. D......Gate City Auto Show Co., Auditorium. J. W. Murphy, Mgr.Mar. 12-15

Raleigh, N. C......Auditorium. John Kelley, Mgr.Mar. 13-16

Peoria, Ill......Peoria Auto Accessories Dealers' Assn. W. O. Ireland, Mgr.Mar. 13-16

Warren, Pa......Warren Automobile Dealers' Assn., Rossell Garage.Mar. 13-16

Great Falls, Mont......Montana Automobile Distributors, Assn., Lexington Garage. A. J. Breitenstein, Mgr.Mar. 15-20

Vancouver, B. C......Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.Mar. 19-23

Houlton, Me......Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luther, Mgr.Mar. 20-22

Holdrege, Neb......Second Annual of Southwest Nebraska.Mar. 20-23

Trenton, N. J......Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.Mar. 20-23

Greensboro, N. C......First Annual. John Kelley, Mgr.Mar. 20-23

Bridgeport, Conn......Sixth Annual Cars and Trucks, Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.Mar. 25-30

Rochester, N. Y......Tenth Annual, Rochester Automobile Trades Ass'n, Exposition Park. C. A. Simmons, Mgr.Mar. 25-30

Fort Fairfield, Me......Reed's Garage. R. F. Reed, Mgr.Mar. 27-29

Atlantic City, N. J......Second Annual, Garden Pier. W. W. Garabant, Mgr.Mar. 30-Apr. 6

Hartford, Conn......Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.Mar. 30-Apr. 6

York, Pa......York Automobile Dealers' Assn., Queen St. Tabernacle.Apr. 1-6

Green Bay, Wis......Brown County Automobile Trade Assn.Apr. 6-8

Red Bank, N. J......Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.Apr. 6-13

Reading, Pa......Reading Automobile Trade Assn.Apr. 8-13

Calumet, Mich......Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.Apr. 17-20

Davis, Cal......Tractor Demonstrations, University of California.Apr. 17-19

Conventions

Detroit, Mich......World's Salesmanship Congress, Third Annual Session.Apr. 24-27

Hot Springs, Va......Convention National Association of Automobile Accessory Jobbers.June 5-12

Passenger Cars

MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		ELECTRIC SYSTEM		IGNITION		CARBURETION		TRANSMISSION						RUNNING GEAR				BEARINGS			
											System	Type of Pump	Make	Voltage	Make	Plug	Make of Carburetor	Fuel Feed	Clutch Type	GEARSET			Final Drive	Car Drives	Rear Axle Type	Make of Rear Axle	Torque Taken By	Wheelbase	Tires	Rims	Wheels	Rear Springs
Abbott	6-60	6	3 1/2 x 5 1/2	20.4	303.1	4.30-1	Cont.	L	H	P	P	P	P	6	Remy	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Salsbury	Springs	122	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Allen	41	6	3 1/2 x 5 1/2	22.5	220.9	4.25-1	Own.	L	H	T	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	112	32x3	SS	Wd.	S-E	Stewart	2 BP	RR	B.
American	B 1375	6	3 1/2 x 5 1/2	23.4	230.1	4.42-1	Butbr.	L	H	P	P	P	P	6	G&D	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	122	32x4	SS	Wd.	S-E	Stewart	3 BP	RR	B.
Anderson	20	4	3 1/2 x 4 1/2	25.3	224.0	4.58-1	Cont.	L	H	P	P	P	P	6	Conn.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	120	33x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Anderson-De Luxe	8-18	8	3 1/2 x 5 1/2	33.8	331.8	4.25-1	Cont.	L	H	T	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	130	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Apperson	2550	8	3 1/2 x 5 1/2	33.8	331.8	4.25-1	Cont.	L	H	T	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	130	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Auburn	6-39	6	3 1/2 x 4 1/2	25.3	224.0	4.42-1	T-Hart.	L	H	P	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	120	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Auburn	6-44	6	3 1/2 x 4 1/2	29.4	303.1	4.08-1	Cont.	L	H	P	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	120	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Austin	3750	12	2 1/2 x 5 1/2	39.7	389.5	3.75-1	Widly	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	142	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Bell	18	4	3 1/2 x 4 1/2	22.5	187.7	4.08-1	(G.B.&S.) Cont.	L	H	T	P	P	P	6	A.Kent	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	114	32x4	SS	Wd.	S-E	Stewart	2 R.	RR	B.
Biddle	18	4	3 1/2 x 4 1/2	22.5	187.7	4.08-1	(G.B.&S.) Cont.	L	H	T	P	P	P	6	A.Kent	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	114	32x4	SS	Wd.	S-E	Stewart	2 R.	RR	B.
Bour-Davis	H 2650	4	3 1/2 x 5 1/2	22.5	226.4	4.40-1	Butbr.	L	H	T	P	P	P	6	Elsnn.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	121	32x4	SS	Wd.	S-E	Stewart	3 BP	RR	B.
Bour-Davis	18A	4	3 1/2 x 5 1/2	22.5	226.4	4.00-1	Cont.	L	H	P	P	P	P	6	West.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	118	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Brew-Davis	18B	4	3 1/2 x 5 1/2	22.5	226.4	4.07-1	Cont.	L	H	P	P	P	P	6	West.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	118	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Brewster	7200	4	4 x 5 1/2	25.6	276.0	4.50-1	Own.	K	C	P	P	P	P	12	Boech.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	125	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Brice	B-4-24	725	4 x 5 1/2	25.6	276.0	4.50-1	Own.	K	C	P	P	P	P	12	Boech.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	125	34x4	SS	Wd.	S-E	Stewart	2 BP	RR	B.
Brice	B-4-35	705	4 x 5 1/2	18.2	170.0	4.25-1	Own.	L	H	P	P	P	P	6	Conn.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	104	30x3	C	Wd.	S-E	Stewart	2 BP	RR	B.
Buck	E-4-37	1185	6 x 3 1/2	27.3	242.0	4.08-1	Own.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	106	31x4	C	Wd.	S-E	Stewart	3 B.	RR	B.
Buck	E-4-45	1265	6 x 3 1/2	27.3	242.0	4.08-1	Own.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	106	31x4	C	Wd.	S-E	Stewart	3 B.	RR	B.
Buck	E-6-46	1695	6 x 3 1/2	27.3	242.0	4.08-1	Own.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	106	31x4	C	Wd.	S-E	Stewart	3 B.	RR	B.
Buck	E-6-47	1845	6 x 3 1/2	27.3	242.0	4.08-1	Own.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	106	31x4	C	Wd.	S-E	Stewart	3 B.	RR	B.
Buck	E-6-49	1975	6 x 3 1/2	27.3	242.0	4.08-1	Own.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	106	31x4	C	Wd.	S-E	Stewart	3 B.	RR	B.
Buck	E-6-50	2175	6 x 3 1/2	31.2	314.0	4.43-1	Own.	L	C	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	124	34x4	SS	Wd.	S-E	Stewart	4 B.	RR	R.
Cadillac	E-6-57	2805	8 x 3 1/2	31.2	314.0	4.43-1	Own.	L	C	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	124	34x4	SS	Wd.	S-E	Stewart	4 B.	RR	R.
Case	U 1875	6	3 1/2 x 5 1/2	29.4	303.0	4.45-1	Cont.	L	H	P	P	P	P	6	West.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	125	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Chalmers	6-30	1365	6 x 3 1/2	25.3	224.0	4.75-1	Own.	L	C	P	P	P	P	6	West.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	125	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Chandler	1595	6	3 1/2 x 5 1/2	29.4	289.0	4.40-1	Own.	L	C	P	P	P	P	6	Boech.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	123	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Cherrollet	400	685	4 x 3 1/2	21.7	171.0	3.65-1	Own.	L	H	P	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	108	30x3	C	Wd.	S-E	Stewart	3 BP	RR	C&C
Cherrollet	F 935	4	3 1/2 x 5 1/2	21.7	171.0	4.25-1	Own.	L	H	P	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	108	30x3	C	Wd.	S-E	Stewart	3 BP	RR	C&C
Cherrollet	D 4	1385	8 x 3 1/2	36.4	286.9	4.25-1	Own.	L	H	P	P	P	P	6	Remy	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	127	34x4	SS	Wd.	S-E	Stewart	3 BP	RR	C&C
Cole	870	2395	8 x 3 1/2	39.2	346.4	4.45-1	North.	L	H	P	P	P	P	6	Delco	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	127	34x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Columbia	C & D	1380	6 x 3 1/2	25.3	224.0	4.75-1	Cont.	L	H	P	P	P	P	6	A.Kent	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	115	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Comet	C-40	1285	6 x 3 1/2	29.4	289.0	4.50-1	Lewis.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	123	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Commonwealth	4-40	995	4 x 3 1/2	19.6	192.0	4.00-1	Lyng	L	H	T	P	P	P	6	A.Kent	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	123	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	B.
Crowford	3404	6	3 1/2 x 5 1/2	29.4	303.0	4.08-1	Cont.	L	H	P	P	P	P	6	Boech.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	123	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	R.
Crowford	CE-36	995	4 x 3 1/2	19.6	192.0	4.25-1	Own.	L	H	T	P	P	P	6	Conn.	Stumg.	V. P.	V. P.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	123	32x4	SS	Wd.	S-E	Stewart	3 B.	RR	C&C
Cunningham	V 4750	8	3 1/2 x 5 1/2	45.0	442.0	3.08-1	Own.	L	H	P	P	P	P	6	Delco	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	132	35x5	Opt.	Opt.	S-E	Stewart	3 BP	RR	R.
Daniels	B 3250	8	3 1/2 x 5 1/2	33.8	332.0	4.45-1	Her-Sp.	L	H	P	P	P	P	6	West.	Stumg.	V. D.	V. D.	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	127	34x4	QDR	Wd.	S-E	Stewart	3 BP	RR	R.
Davis	H, I & K	1785	6 x 3 1/2	29.4	224.0	4.58-1	Cont.	L	H	P	P	P	P	6	Delco	Stumg.	V. C	V. C	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	119	34x4	Wd.	Wd.	S-E	Stewart	3 BP	RR	R.
Dispatch	1250	4	3 1/2 x 5 1/2	25.3	224.0	4.42-1	Cont.	L	H	P	P	P	P	6	Delco	Stumg.	V. C	V. C	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	125	34x4	Wd.	Wd.	S-E	Stewart	3 BP	RR	R.
Dixie Flyer	LS-35	995	4 x 3 1/2	16.9	165.9	4.12-1	Wis.	L	H	T	P	P	P	12	Conn.	Stumg.	V. CU	V. CU	Sp. B.	Sp. B.	Sp. B.	Stewart	Springs	120	36x3	QD						

Model	Price	Engine	Transmission	Drive	Weight	Speed	Range	Capacity	Features	Notes
Ford	5500	4-17	5-17	5-17	5500	4-17	5-17	5-17	5-17	5-17
Franklin	2250	4-17	5-17	5-17	2250	4-17	5-17	5-17	5-17	5-17
F.R.P.	7000	4-17	5-17	5-17	7000	4-17	5-17	5-17	5-17	5-17
Glide	1495	6-40	1495	6-40	1495	6-40	1495	6-40	1495	6-40
Grant	1055	6-40	1055	6-40	1055	6-40	1055	6-40	1055	6-40
Hackett Four	985	4-17	5-17	5-17	985	4-17	5-17	5-17	5-17	5-17
HAL-Twelve	3750	21A	3750	21A	3750	21A	3750	21A	3750	21A
Halladay	1385	R	1385	R	1385	R	1385	R	1385	R
Harroun	985	4-17	5-17	5-17	985	4-17	5-17	5-17	5-17	5-17
Haynes	1725	38	1725	38	1725	38	1725	38	1725	38
Haynes	1825	38	1825	38	1825	38	1825	38	1825	38
Hoffler	1885	188	1885	188	1885	188	1885	188	1885	188
Hoffler	206	206	206	206	206	206	206	206	206	206
Hudson	1950	6-38	1950	6-38	1950	6-38	1950	6-38	1950	6-38
Hupmobile	1250	4-17	5-17	5-17	1250	4-17	5-17	5-17	5-17	5-17
Inter-State	1000	4-17	5-17	5-17	1000	4-17	5-17	5-17	5-17	5-17
Jackson	1495	349	1495	349	1495	349	1495	349	1495	349
Jones	1075	26-AB	1075	26-AB	1075	26-AB	1075	26-AB	1075	26-AB
Jordan	1995	J-60	1995	J-60	1995	J-60	1995	J-60	1995	J-60
King	2350	EE	2350	EE	2350	EE	2350	EE	2350	EE
Kissel	1495	Double Six	1495	Double Six	1495	Double Six	1495	Double Six	1495	Double Six
Kline	1485	6-38	1485	6-38	1485	6-38	1485	6-38	1485	6-38
Lexington	1585	6-R	1585	6-R	1585	6-R	1585	6-R	1585	6-R
Liberty	1350	10-B	1350	10-B	1350	10-B	1350	10-B	1350	10-B
Lecmobile	5000	2-38	5000	2-38	5000	2-38	5000	2-38	5000	2-38
Lecmobile	5950	2-48	5950	2-48	5950	2-48	5950	2-48	5950	2-48
Madison	1485	6-38	1485	6-38	1485	6-38	1485	6-38	1485	6-38
Mailhain	830	A	830	A	830	A	830	A	830	A
Mailhain	1050	B	1050	B	1050	B	1050	B	1050	B
Marmon	3500	34	3500	34	3500	34	3500	34	3500	34
Maxwell	745	25	745	25	745	25	745	25	745	25
Maxwell	3500	22-73	3500	22-73	3500	22-73	3500	22-73	3500	22-73
Mercer	3500	22-73	3500	22-73	3500	22-73	3500	22-73	3500	22-73
Metz	695	25	695	25	695	25	695	25	695	25
Mitchell	1250	D-42	1250	D-42	1250	D-42	1250	D-42	1250	D-42
Moline-Knight	1630	C	1630	C	1630	C	1630	C	1630	C
Monitor	1295	G	1295	G	1295	G	1295	G	1295	G
Monroe	635	Club M-3	635	Club M-3	635	Club M-3	635	Club M-3	635	Club M-3
Monroe	1295	M-6	1295	M-6	1295	M-6	1295	M-6	1295	M-6
Moon	1295	6-38	1295	6-38	1295	6-38	1295	6-38	1295	6-38
Moon	1985	6-66	1985	6-66	1985	6-66	1985	6-66	1985	6-66
Murray	2800	70-T	2800	70-T	2800	70-T	2800	70-T	2800	70-T
Nash	1495	681	1495	681	1495	681	1495	681	1495	681
Nash	1295	683	1295	683	1295	683	1295	683	1295	683
National	2150	6	2150	6	2150	6	2150	6	2150	6
National	1750	12	1750	12	1750	12	1750	12	1750	12
Nelson	1400	4	1400	4	1400	4	1400	4	1400	4

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION		ELECTRIC SYSTEM		IGNITION	CARBURETION		TRANSMISSION				RUNNING GEAR				BEARINGS										
											System	Type of Pump	Make	Voltage		Make	Plug	Make of Carburetor	Clutch Type	Location	Forward	Make	Final Drive	Car Drives Through	Rear Axle Type	Make of Rear Axle	Torque Taken By	Wheelbase	Tire	Rims	Wheels	Rear Springs	Make of Speedometer	Number Crankshaft Bearings	Gearset	Rear Axle
Dakland	34-B	990	2 1/4 x 3 1/2	19.0	177.0	4.50-1	North	I	H	P	Sp-Pr	G	Remy-2	6	Remy	1/2	Marvel	V. C.	Unit M.	3	Warner	Bevel	Sp.B.	Springs	F	West.M	Springs	112	32 1/2	SS	Wd.	S.E.	Stewart	3 Bp.	BR	R.
Oldobile	37	1185	2 1/4 x 3 1/2	19.0	177.0	4.58-1	North	I	H	P	Sp-Pr	G	Remy-2	6	Remy	1/2	Marvel	V. C.	Unit M.	3	North	Sp.B.	Springs	F	West.M	Springs	112	32 1/2	SS	Wd.	S.E.	Stewart	2 Bp.	BR	R.	
Oldobile	45-A	1487	2 1/4 x 3 1/2	26.4	246.7	4.92-1	Own.	L	H	P	Pr	G	Delco-2	6	Delco	1/2	Johnson	V. C.	Unit M.	3	Own	Sp.B.	Springs	F	West.M	Springs	120	34 1/2	SS	Wd.	S.E.	Stewart	2 Bp.	BR	R.	
Olympian	90	1685	3 1/4 x 4 1/2	16.9	148.3	4.75-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Stumg	V. D.	Unit X	3	Own	Sp.B.	Springs	F	Own	Rad.Rd	120	32 3/4	SS	Opt.	Trans	Stewart	2 Bp.	BR	R.	
Olympian	90	1785	3 1/4 x 4 1/2	18.2	178.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	106	31 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-1	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-2	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-3	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-4	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-5	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-6	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-7	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-8	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	Cant.	Stewart	5 BR	RR	R.	
Orend	85-B-9	1330	3 1/4 x 4 1/2	27.2	240.5	4.00-1	Own.	L	H	P	Pr	G	A-Lite-2	6	Conn	1/2	Tillson	V. C.	Unit X	3	Own	Bevel	Tor.T	T	Own	Tor.T	112	32 1/4	SS	Wd.	C					

MOTOR WORLD GUIDE

Lamp Bulbs

Lamp Bulbs

Car and Model	HEAD LAMPS		SIDE LAMPS		TAIL LAMP		DASH LAMP		Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
	Volt	Cp.	Volt	Cp.	Volt	Cp.	Volt	Cp.					
Abbott-Detroit.	6-8	15	6-8	4H	6-8	2	6-8	2	E.S.	S.	D. Bulb.	Dash lamp double.	
Allen-HI	6-8	18	6-8	4	6-8	2	6-8	2	E.S.	S.	D. Bulb.	Dash lamp double.	
American-B	6-8	15	6-8	4H	6-8	2	3-4	2	20	E.S.	S.	Dash lamp double.	
Anderson..20	6-8	18	6-8	12H	6-8	4	6-8	4	10	E.D.	D.	Resist.	
Apperson..20	6-8	18	6-8	4	6-8	2	6-8	2	25	E.S.	S.	Dash Ediswan D.	
Auburn 39 B	6-8	15	6-8	12	6-8	2	6-8	2	25	E.S.	S.	Dash Ediswan D.	
Auburn 44	6-8	18	6-8	12	6-8	2	6-8	2	25	E.S.	S.	Dash Ediswan D.	
Austin.....	6-8	24	6-8	4H	6-8	4	6-8	4	10	E.S.	S.	Tonneau & Spotlights 6-8 v. 2 op.	
Bell.....18	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Dash Ediswan D.	
Biddle.....H	6-8	21	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	Dash lamp Ediswan D.	
Brewster.....U	12-16	40	12-16	4H	6-8	2	6-8	2	20	E.S.	S.	Dash lamp Ediswan D.	
Brown.....	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Resist.	
Brown.....	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Resist.	
Bour Davis.....	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	Warner lens.	
Butt.....	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	Warner lens.	
Cadillac...57	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	E.S.	S.	Warner lens.	
Cass.....U	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Chalmers..6-30	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Chandler..4-90	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Chandler..FA	6-8	12	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Charlelot..FA	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Chrysler....	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Crawford..6-40	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Crow-Elkart..	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Cunningham.V	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Warner lens.	
Danaile.....B	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Davis.....	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Dispatch....	12-16	21	12-16	12-16	6-8	2	6-8	2	2	E.D.	S.	Warner lens.	
Disse Flyer..	6-8	15	6-8	15	3-4	2	3-4	2	2	E.D.	S.	Warner lens.	
Dodge Brothers.	12-16	32	12-16	12-16	6-8	2	6-8	2	None	E.D.	S.	Warner lens.	
Dodd Brothers.	12-16	15	12-16	12-16	6-8	2	6-8	2	None	E.D.	S.	Warner lens.	
Dorris.....6-80	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Dort.....11	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	
Elgin.....A	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Elcar.....	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Empire.....	6-8	15	6-8	4H	6-8	2	3-4	2	20	E.S.	S.	Warner lens.	
Fiat.....E-17	6-8	15	6-8	4H	6-8	2	6-8	4	.....	E.S.	S.	Warner lens.
Ford.....T	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.D.	S.	Warner lens.
Franklin....9	12-16	21	12-16	4H	6-8	2	6-8	2	10	E.D.	S.	Warner lens.	
G.P.R.P., 45-B	12-16	25	12-16	6	12-16	3	12-16	3	6-3	E.S.	S.	Warner lens.	
G.P.R.P. Premier	6-0	6-8	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	Warner lens.	
Glide.....	6-40	6-8	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Grant.....G	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
HAL.....21A	6-8	18	6-8	.....	6-8	2	6-8	4	15	E.S.	S.	Warner lens.
Halladay....	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Warner lens.
Halladay....A-1	6-8	15	6-8	3	3	2	6-8	2	15	E.S.	S.	Warner lens.	
Harpas.....	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D.	S.	Warner lens.	
Heller.....	6-8	15	6-8	12H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Hollier.....	6-8	15	6-8	12H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Hudson.....	6-8	15	6-8	12H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Hudson.....	6-8	15	6-8	12H	6-8	2	6-8	2	20	E.S.	S.	Warner lens.	
Hudson.....R	6-8	15	6-8	2	3-4	2	3-4	2	20	E.S.	S.	Warner lens.	
Hubbelle.....	6-8	15	6-8	2	3-4	2	3-4	2	20	E.S.	S.	Warner lens.	
Hubbelle.....T	6-8	15	6-8	2	3-4	2	3-4	2	20	E.S.	S.	Warner lens.	
Inter-State..T	6-8	15	6-8	2	6-8	2	6-8	2	10	E.D.	S.	Warner lens.	
Jackson....349	6-8	15	6-8	2	6-8	2	6-8	2	20	E.D.	S.	Warner lens.	
Jordan....26AB	6-8	15	6-8	2	6-8	2	6-8	2	20	E.D.	S.	Warner lens.	
Jordan....5-60	6-8	15	6-8	2	6-8	2	6-8	2	20	E.D.	S.	Warner lens.	

ABBREVIATIONS:—C.B.—Circuit Breaker. Candel.—Candelabra. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance. S.—Single wiring system. Series—Series connection.

Tires
and Tubes

MOTOR WORLD GUIDE

Tires
and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½				
ACME	Plain	16.00	17.20	18.10	23.00	23.00	24.40	25.80	27.50	28.80	29.80	30.80	31.80	32.80	33.80	34.80	35.80	36.70	38.00	45.30	46.70	48.30	49.60	51.10	52.60	57.70	59.50	61.40	67.80	78.90	
	Kam Tread	17.90	19.00	19.90	24.20	24.20	25.60	27.00	28.70	29.80	30.80	31.80	32.80	33.80	34.80	35.80	36.70	38.00	45.30	46.70	48.30	49.60	51.10	52.60	57.70	59.50	61.40	67.80	78.90		
	Double	18.40	19.60	20.20	24.40	24.40	25.80	27.20	28.90	30.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00	38.00	45.30	46.70	48.30	49.60	51.10	52.60	57.70	59.50	61.40	67.80	78.90		
	Handmade	20.20	21.60	22.00	26.00	26.00	27.40	28.80	30.50	31.60	32.60	33.60	34.60	35.60	36.60	37.60	38.60	39.60	40.60	41.60	42.60	43.60	44.60	45.60	46.60	47.60	48.60	49.60	50.60	51.60	
ADVANCE	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.55	6.05	6.05	6.25	6.45	6.65	6.75	6.95	7.15	7.35	7.55	7.75	7.95	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	11.50	11.50	
	Plain	12.75	13.40	14.10	17.45	18.35	20.40	22.80	25.20	27.60	29.00	30.40	31.80	33.20	34.60	36.00	37.40	38.80	40.20	41.60	43.00	44.40	45.80	47.20	48.60	49.90	51.30	52.70	54.10	55.50	
	Non-Skid	13.35	14.10	14.85	18.25	19.30	21.40	23.80	26.20	28.60	29.90	31.30	32.70	34.10	35.50	36.90	38.30	39.70	41.10	42.50	43.90	45.30	46.70	48.10	49.50	50.90	52.30	53.70	55.10	56.50	
	Plain	13.65	14.45	15.75	18.60	19.60	22.55	25.95	28.85	30.25	31.65	33.05	34.45	35.85	37.25	38.65	40.05	41.45	42.85	44.25	45.65	47.05	48.45	49.85	51.25	52.65	54.05	55.45	56.85	58.25	
AJAX	Plain	15.30	16.10	17.00	20.40	21.40	24.35	27.75	30.65	32.05	33.45	34.85	36.25	37.65	39.05	40.45	41.85	43.25	44.65	46.05	47.45	48.85	50.25	51.65	53.05	54.45	55.85	57.25	58.65	60.05	
	Non-Skid	16.10	16.90	17.80	21.20	22.20	25.15	28.55	31.45	32.85	34.25	35.65	37.05	38.45	39.85	41.25	42.65	44.05	45.45	46.85	48.25	49.65	51.05	52.45	53.85	55.25	56.65	58.05	59.45	60.85	
	Red King	14.70	15.55	16.40	19.80	20.80	23.75	27.15	30.05	31.45	32.85	34.25	35.65	37.05	38.45	39.85	41.25	42.65	44.05	45.45	46.85	48.25	49.65	51.05	52.45	53.85	55.25	56.65	58.05	59.45	
	Gray Tubes	3.20	3.00	3.40	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.55	5.75	5.95	6.15	6.35	6.55	6.70	6.85	6.95	7.00	7.05	7.10	7.15	7.20	7.25	7.30	
AMAZON	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.55	6.70	6.95	7.15	7.35	7.50	7.65	7.80	7.85	8.00	8.05	8.10	8.15	8.20	8.25	8.30	
	Plain	16.75	17.65	18.55	22.10	23.10	26.05	29.45	32.35	33.75	35.15	36.55	37.95	39.35	40.75	42.15	43.55	44.95	46.35	47.75	49.15	50.55	51.95	53.35	54.75	56.15	57.55	58.95	60.35	61.75	
	Ribbed	17.05	17.95	18.85	22.40	23.40	26.35	29.75	32.65	34.05	35.45	36.85	38.25	39.65	41.05	42.45	43.85	45.25	46.65	48.05	49.45	50.85	52.25	53.65	55.05	56.45	57.85	59.25	60.65	62.05	
	Non-Skid	18.05	18.95	19.85	23.40	24.40	27.35	30.75	33.65	35.05	36.45	37.85	39.25	40.65	42.05	43.45	44.85	46.25	47.65	49.05	50.45	51.85	53.25	54.65	56.05	57.45	58.85	60.25	61.65	63.05	
AMERICAN	Red-Gray Tubes	3.15	3.50	4.10	4.10	4.10	4.25	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	
	Plain	15.00	16.00	17.00	20.45	22.10	24.05	26.00	28.00	29.40	30.80	32.20	33.60	35.00	36.40	37.80	39.20	40.60	42.00	43.40	44.80	46.20	47.60	49.00	50.40	51.80	53.20	54.60	56.00	57.40	
	Ribbed or Plain	15.80	16.80	17.80	21.25	23.00	24.95	26.90	28.85	30.80	32.75	34.70	36.65	38.60	40.55	42.50	44.45	46.40	48.35	50.30	52.25	54.20	56.15	58.10	60.05	62.00	63.95	65.90	67.85	69.80	
	Triple A Non-Skid	16.60	17.60	18.60	22.05	23.80	25.75	27.70	29.65	31.60	33.55	35.50	37.45	39.40	41.35	43.30	45.25	47.20	49.15	51.10	53.05	55.00	56.95	58.90	60.85	62.80	64.75	66.70	68.65	70.60	
ARABIAN	Red Indian Tubes	3.25	3.50	3.75	4.20	4.25	4.30	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	
	Plain	16.00	17.00	18.00	21.45	22.45	25.35	28.75	31.65	33.05	34.45	35.85	37.25	38.65	40.05	41.45	42.85	44.25	45.65	47.05	48.45	49.85	51.25	52.65	54.05	55.45	56.85	58.25	59.65	61.05	
	Fluted Tread	16.40	17.40	18.40	21.85	22.85	25.75	29.15	32.05	33.45	34.85	36.25	37.65	39.05	40.45	41.85	43.25	44.65	46.05	47.45	48.85	50.25	51.65	53.05	54.45	55.85	57.25	58.65	60.05	61.45	
	Non-Skid	17.20	18.20	19.20	22.65	23.65	26.55	29.95	32.85	34.25	35.65	37.05	38.45	39.85	41.25	42.65	44.05	45.45	46.85	48.25	49.65	51.05	52.45	53.85	55.25	56.65	58.05	59.45	60.85	62.25	
ARCADIA	Plain	14.00	15.20	16.40	19.60	20.60	23.45	26.85	29.75	31.15	32.55	33.95	35.35	36.75	38.15	39.55	40.95	42.35	43.75	45.15	46.55	47.95	49.35	50.75	52.15	53.55	54.95	56.35	57.75	59.15	
	Non-Skid	15.00	16.00	17.00	20.45	22.10	24.05	26.00	28.00	29.40	30.80	32.20	33.60	35.00	36.40	37.80	39.20	40.60	42.00	43.40	44.80	46.20	47.60	49.00	50.40	51.80	53.20	54.60	56.00	57.40	
	Red Tubes	3.60	3.70	4.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
	Gray Tubes	3.25	3.35	3.65	4.00	4.00	4.25	4.25	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
ARCHER	Ribbed Tread	28.80	29.80	30.80	34.25	35.25	38.15	41.55	44.45	45.85	47.25	48.65	50.05	51.45	52.85	54.25	55.65	57.05	58.45	59.85	61.25	62.65	64.05	65.45	66.85	68.25	69.65	71.05	72.45	73.85	
	Non-Skid	18.00	19.00	20.00	23.45	24.45	27.35	30.75	33.65	35.05	36.45	37.85	39.25	40.65	42.05	43.45	44.85	46.25	47.65	49.05	50.45	51.85	53.25	54.65	56.05	57.45	58.85	60.25	61.65	63.05	
	Gray Tubes	3.15	3.25	3.55	3.85	3.85	4.10	4.10	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35
	Red Tubes	4.15	4.15	4.45	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75
ARMSTRONG	Red Tubes	4.00	4.00	4.50	4.75	4.75	4.95	5.20	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	
	Non-Skid	19.00	20.00	21.00	24.45	25.45	28.35	31.75	34.65	36.05	37.45	38.85	40.25	41.65	43.05	44.45	45.85														

Name	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER	Plain Non-Skid Gray Tubes	q13.95 q16.20 q16.45 3.60 3.70 4.00	q18.10 q21.30 q21.30 4.15 4.40 4.80	q19.15 q21.30 q22.20 4.40 4.70 5.00	q21.30 q24.70 q27.10 4.80 5.00	q24.05 q27.10 q30.40 5.00	q26.05 q30.00 q34.80 5.30 6.00	q27.65 q32.05 q36.80 5.90	q28.20 q32.75 q37.50 6.00	q28.70 q33.35 q38.10 6.20	q30.15 q35.00 q39.75 6.40	q30.80 q35.65 q40.40 6.60	q32.65 q37.50 q42.30 6.80	q32.65 q37.50 q42.30 6.80	q31.90 q37.00 q41.70 7.00	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
		q13.30 q15.60 q16.80 3.30 3.40 3.50	q18.25 q21.35 q23.00 4.15 4.25 4.35	q19.60 q23.00 q26.35 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
BRUNSWICK	Plain Std Not Gray Tubes	q13.30 q15.60 q16.80 3.30 3.40 3.50	q18.25 q21.35 q23.00 4.15 4.25 4.35	q19.60 q23.00 q26.35 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
BULL	Plain Non-Skid Red Tubes	q13.50 q15.15 q16.80 3.10 3.20 3.30	q17.90 q19.95 q21.35 4.15 4.25 4.35	q19.55 q21.35 q23.00 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
		q13.90 q15.15 q16.80 3.10 3.20 3.30	q17.90 q19.95 q21.35 4.15 4.25 4.35	q19.55 q21.35 q23.00 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
CAPITOL	Plain Non-Skid Redman Tubes	q13.50 q15.15 q16.80 3.10 3.20 3.30	q17.90 q19.95 q21.35 4.15 4.25 4.35	q19.55 q21.35 q23.00 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
CARLISLE	Lightning Tread	q12.75 q14.00 q15.25 3.00 3.10 3.20	q16.00 q18.25 q19.50 3.80 3.90 4.00	q18.25 q20.50 q21.75 4.50 4.60 4.70	q20.50 q22.75 q24.00 4.80 4.90 5.00	q22.75 q25.00 q26.25 5.10 5.20 5.30	q25.00 q27.25 q28.50 5.40 5.50 5.60	q27.25 q29.50 q30.75 5.70 5.80 5.90	q29.50 q31.75 q33.00 6.00 6.10 6.20	q31.75 q34.00 q35.25 6.30 6.40 6.50	q34.00 q36.25 q37.50 6.60 6.70 6.80	q36.25 q38.50 q39.75 6.90 7.00 7.10	q38.50 q40.75 q42.00 7.20 7.30 7.40	q40.75 q43.00 q44.25 7.50 7.60 7.70	q43.00 q45.25 q46.50 7.80 7.90 8.00	q45.25 q47.50 q48.75 8.10 8.20 8.30	q47.50 q49.75 q51.00 8.40 8.50 8.60	q49.75 q52.00 q53.25 8.70 8.80 8.90	q52.00 q54.25 q55.50 9.00 9.10 9.20	q54.25 q56.50 q57.75 9.30 9.40 9.50	q56.50 q58.75 q60.00 9.60 9.70 9.80	q58.75 q61.00 q62.25 9.90 10.00 10.10	q61.00 q63.25 q64.50 10.20 10.30 10.40	q63.25 q65.50 q66.75 10.50 10.60 10.70	
		q12.75 q14.00 q15.25 3.00 3.10 3.20	q16.00 q18.25 q19.50 3.80 3.90 4.00	q18.25 q20.50 q21.75 4.50 4.60 4.70	q20.50 q22.75 q24.00 4.80 4.90 5.00	q22.75 q25.00 q26.25 5.10 5.20 5.30	q25.00 q27.25 q28.50 5.40 5.50 5.60	q27.25 q29.50 q30.75 5.70 5.80 5.90	q29.50 q31.75 q33.00 6.00 6.10 6.20	q31.75 q34.00 q35.25 6.30 6.40 6.50	q34.00 q36.25 q37.50 6.60 6.70 6.80	q36.25 q38.50 q39.75 6.90 7.00 7.10	q38.50 q40.75 q42.00 7.20 7.30 7.40	q40.75 q43.00 q44.25 7.50 7.60 7.70	q43.00 q45.25 q46.50 7.80 7.90 8.00	q45.25 q47.50 q48.75 8.10 8.20 8.30	q47.50 q49.75 q51.00 8.40 8.50 8.60	q49.75 q52.00 q53.25 8.70 8.80 8.90	q52.00 q54.25 q55.50 9.00 9.10 9.20	q54.25 q56.50 q57.75 9.30 9.40 9.50	q56.50 q58.75 q60.00 9.60 9.70 9.80	q58.75 q61.00 q62.25 9.90 10.00 10.10	q61.00 q63.25 q64.50 10.20 10.30 10.40	q63.25 q65.50 q66.75 10.50 10.60 10.70	
CARSPRING	Plain "C" Tread	q18.20 q19.55 q20.45 3.45 3.55 3.65	q25.30 q28.50 q30.45 4.00 4.10 4.20	q28.50 q31.70 q33.60 4.40 4.50 4.60	q30.45 q33.60 q35.50 4.70 4.80 4.90	q32.30 q35.50 q37.40 4.90 5.00 5.10	q34.20 q37.40 q39.30 5.10 5.20 5.30	q36.10 q39.30 q41.20 5.30 5.40 5.50	q38.00 q41.20 q43.10 5.50 5.60 5.70	q39.90 q43.10 q45.00 5.70 5.80 5.90	q41.80 q45.00 q46.90 5.90 6.00 6.10	q43.70 q46.90 q48.80 6.10 6.20 6.30	q45.60 q48.80 q50.70 6.30 6.40 6.50	q47.50 q50.70 q52.60 6.50 6.60 6.70	q49.40 q52.60 q54.50 6.70 6.80 6.90	q51.30 q54.50 q56.40 6.90 7.00 7.10	q53.20 q56.40 q58.30 7.10 7.20 7.30	q55.10 q58.30 q60.20 7.30 7.40 7.50	q57.00 q60.20 q62.10 7.50 7.60 7.70	q58.90 q62.10 q64.00 7.70 7.80 7.90	q60.80 q64.00 q65.90 7.90 8.00 8.10	q62.70 q65.90 q67.80 8.10 8.20 8.30	q64.60 q67.80 q69.70 8.30 8.40 8.50	q66.50 q69.70 q71.60 8.50 8.60 8.70	
CENTURY-PLAINFIELD	Ribbed Non-Skid Tubes	18.25 19.20 20.15 3.45 3.55 3.65	23.40 24.65 25.90 4.00 4.10 4.20	27.05 28.30 29.55 4.60 4.70 4.80	30.70 31.95 33.20 4.80 4.90 5.00	34.35 35.60 36.85 5.00 5.10 5.20	38.00 39.25 40.50 5.20 5.30 5.40	41.65 42.90 44.15 5.40 5.50 5.60	45.30 46.55 47.80 5.60 5.70 5.80	48.95 50.20 51.45 5.80 5.90 6.00	52.60 53.85 55.10 6.00 6.10 6.20	56.25 57.50 58.75 6.20 6.30 6.40	59.90 61.15 62.40 6.40 6.50 6.60	63.55 64.80 66.05 6.60 6.70 6.80	67.20 68.45 69.70 6.80 6.90 7.00	70.85 72.10 73.35 7.00 7.10 7.20	74.50 75.75 77.00 7.20 7.30 7.40	78.15 79.40 80.65 7.40 7.50 7.60	81.80 83.05 84.30 7.60 7.70 7.80	85.45 86.70 87.95 7.80 7.90 8.00	89.10 90.35 91.60 8.00 8.10 8.20	92.75 94.00 95.25 8.20 8.30 8.40	96.40 97.65 98.90 8.40 8.50 8.60		
CHAMPION	Non-Skid Champion Gray Tubes	14.45 15.40 16.35 3.10 3.20 3.30	18.25 19.20 20.15 3.70 3.80 3.90	22.05 23.00 23.95 4.30 4.40 4.50	25.85 26.80 27.75 4.90 5.00 5.10	29.65 30.60 31.55 5.50 5.60 5.70	33.45 34.40 35.35 6.10 6.20 6.30	37.25 38.20 39.15 6.70 6.80 6.90	41.05 42.00 42.95 7.30 7.40 7.50	44.85 45.80 46.75 7.90 8.00 8.10	48.65 49.60 50.55 8.50 8.60 8.70	52.45 53.40 54.35 9.10 9.20 9.30	56.25 57.20 58.15 9.70 9.80 9.90	60.05 61.00 61.95 10.30 10.40 10.50	63.85 64.80 65.75 10.90 11.00 11.10	67.65 68.60 69.55 11.50 11.60 11.70	71.45 72.40 73.35 12.10 12.20 12.30	75.25 76.20 77.15 12.70 12.80 12.90	79.05 80.00 80.95 13.30 13.40 13.50	82.85 83.80 84.75 13.90 14.00 14.10	86.65 87.60 88.55 14.50 14.60 14.70	90.45 91.40 92.35 15.10 15.20 15.30	94.25 95.20 96.15 15.70 15.80 15.90	98.05 99.00 99.95 16.30 16.40 16.50	
CHESTER	Plain Non-Skid Red Tubes	q13.50 q15.15 q16.80 3.30 3.40 3.50	q17.90 q19.95 q21.35 4.15 4.25 4.35	q19.55 q21.35 q23.00 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
CLEVELAND-STANDARD	Plain Non-Skid Red Tubes	q13.50 q15.15 q16.80 3.30 3.40 3.50	q17.90 q19.95 q21.35 4.15 4.25 4.35	q19.55 q21.35 q23.00 4.40 4.55 4.65	q21.35 q24.20 q27.10 4.65	q24.20 q27.10 q30.00 4.85	q26.05 q30.00 q34.80 5.10	q27.65 q32.05 q36.80 5.40	q28.20 q32.75 q37.50 5.60	q28.70 q33.35 q38.10 5.80	q30.15 q35.00 q39.75 6.00	q30.80 q35.65 q40.40 6.20	q32.65 q37.50 q42.30 6.40	q32.65 q37.50 q42.30 6.40	q31.90 q37.00 q41.70 6.60	41.25 47.75 54.25 7.00	40.05 46.40 52.80 7.10	41.35 47.95 54.55 7.20	43.25 50.15 56.95 7.30	43.95 51.00 57.85 7.40	44.60 51.75 58.60 7.50	55.90 64.80 73.70 10.00	53.35 61.90 70.80 10.20	53.35 61.90 70.80 10.20	q82.95 q87.75 q92.55 11.00
COLUMBIA	Plain Non-Skid Gray Tubes	q12.75 q14.00 q15.25 3.00 3.10 3.20	q16.00 q18.25 q19.50 3.80 3.90 4.00	q18.25 q20.50 q21.75 4.50 4.60 4.70	q20.50 q22.75 q24.00 4.80 4.90 5.00	q22.75 q25.00 q26.25 5.10 5.20 5.30	q25.00 q27.25 q28.50 5.40 5.50 5.60	q27.25 q29.50 q30.75 5.70 5.80 5.90</																	

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	38x5½
G & J.	Plain	13.25	17.85	18.85	20.85	21.85	23.85	25.85	27.15	28.85	29.85	30.85	31.85	32.85	33.85	34.90	31.90	32.90	33.90	34.90	35.90	36.90	48.20	56.25	51.10	38.5½
	Non-Skid	15.25	19.85	20.85	22.85	23.85	25.85	26.85	28.85	29.85	30.85	31.85	32.85	33.85	34.85	35.90	32.90	33.90	34.90	35.90	36.90	37.90	50.60	59.05	53.70	41.25
	Stalwart Tread		21.35	22.45	24.45	25.45	27.45	28.45	30.45	31.45	32.45	33.45	34.45	35.45	36.45	37.45	34.90	35.90	36.90	37.90	38.90	40.90	52.85	61.25	55.40	43.25
	Gray Tubes	2.85	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.25	7.90	8.15	7.40	8.60	
GENERAL.	Red Tubes	3.65	4.65	4.80	4.90	5.35	5.45	5.85	5.95	6.00	6.05	6.10	6.15	6.25	6.65	6.65	6.65	6.70	6.80	6.90	7.00	7.10	8.00	8.15	7.40	8.60
	Plain	16.90	21.05	22.05	24.05	25.05	27.05	28.05	30.05	31.05	32.05	33.05	34.05	35.05	36.05	37.45	34.40	35.40	36.40	37.40	38.40	39.40	51.40	59.45	53.60	41.65
	Non-Skid	18.35	22.75	23.75	25.75	26.75	28.75	29.75	31.75	32.75	33.75	34.75	35.75	36.75	37.75	38.75	35.80	36.80	37.80	38.80	39.80	40.80	52.80	60.85	55.00	43.05
	Gray Tubes	3.05	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
GILLETTE SAFETY.	Red Tubes	3.85	4.85	4.95	5.10	5.40	5.50	5.90	6.00	6.05	6.10	6.15	6.25	6.65	6.65	6.65	6.65	6.70	6.80	6.90	7.00	7.10	8.00	8.15	7.40	8.60
	Plain	14.90	17.95	18.95	20.95	21.95	23.95	24.95	26.95	27.95	28.95	29.95	30.95	31.95	32.95	33.95	31.00	32.00	33.00	34.00	35.00	36.00	48.00	56.05	50.20	38.25
	Non-Skid	16.35	20.75	21.75	23.75	24.75	26.75	27.75	29.75	30.75	31.75	32.75	33.75	34.75	35.75	36.75	33.80	34.80	35.80	36.80	37.80	38.80	50.80	58.85	53.00	41.05
	Gray Tubes	3.05	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
GLOBE.	Hard Service Red Tubes	2.75	3.00	3.70	3.75	4.65	4.90	4.90	4.30	4.85	4.85	5.00	5.15	5.25	5.45	5.55	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65
	Plain	19.90	22.35	23.35	25.35	26.35	28.35	29.35	31.35	32.35	33.35	34.35	35.35	36.35	37.35	38.35	35.40	36.40	37.40	38.40	39.40	40.40	52.40	60.45	54.60	42.65
	Non-Skid	21.35	23.75	24.75	26.75	27.75	29.75	30.75	32.75	33.75	34.75	35.75	36.75	37.75	38.75	39.75	36.80	37.80	38.80	39.80	40.80	41.80	53.80	61.85	56.00	44.05
	Gray Tubes	3.05	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
GOODRICH.	Safety Tread	13.80	17.45	18.45	20.45	21.45	23.45	24.45	26.45	27.45	28.45	29.45	30.45	31.45	32.45	33.45	31.50	32.50	33.50	34.50	35.50	47.50	55.55	49.70	37.75	
	Gray Tubes	3.10	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
	Non-Skid	14.45	18.10	19.10	21.10	22.10	24.10	25.10	27.10	28.10	29.10	30.10	31.10	32.10	33.10	34.10	32.20	33.20	34.20	35.20	36.20	48.20	56.25	50.40	38.45	
	Gray Tubes	3.40	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
GOODYEAR.	Unusual Sizes—Plain Tread	14.80	18.45	19.45	21.45	22.45	24.45	25.45	27.45	28.45	29.45	30.45	31.45	32.45	33.45	34.45	32.60	33.60	34.60	35.60	36.60	48.60	56.65	50.80	38.85	
	Gray Tubes	3.55	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
	Non-Skid	15.45	19.10	20.10	22.10	23.10	25.10	26.10	28.10	29.10	30.10	31.10	32.10	33.10	34.10	35.10	33.20	34.20	35.20	36.20	37.20	49.20	57.25	51.40	39.45	
	Gray Tubes	3.85	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
GORDON.	Retraction Tread	14.80	18.45	19.45	21.45	22.45	24.45	25.45	27.45	28.45	29.45	30.45	31.45	32.45	33.45	34.45	32.60	33.60	34.60	35.60	36.60	48.60	56.65	50.80	38.85	
	Gray Tubes	3.55	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
	Non-Skid	15.45	19.10	20.10	22.10	23.10	25.10	26.10	28.10	29.10	30.10	31.10	32.10	33.10	34.10	35.10	33.20	34.20	35.20	36.20	37.20	49.20	57.25	51.40	39.45	
	Gray Tubes	3.85	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
GRYPHON.	Non-Skid	15.60	19.25	20.25	22.25	23.25	25.25	26.25	28.25	29.25	30.25	31.25	32.25	33.25	34.25	35.25	33.40	34.40	35.40	36.40	37.40	49.40	57.45	51.60	39.65	
	Gray Tubes	3.75	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
	Non-Skid	16.25	20.00	21.00	23.00	24.00	26.00	27.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00	34.20	35.20	36.20	37.20	38.20	50.20	58.25	52.40	40.45	
	Gray Tubes	3.95	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
HAMILTON.	Cable Tread	14.80	18.45	19.45	21.45	22.45	24.45	25.45	27.45	28.45	29.45	30.45	31.45	32.45	33.45	34.45	32.60	33.60	34.60	35.60	36.60	48.60	56.65	50.80	38.85	
	Gray Tubes	3.55	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
	Non-Skid	15.45	19.10	20.10	22.10	23.10	25.10	26.10	28.10	29.10	30.10	31.10	32.10	33.10	34.10	35.10	33.20	34.20	35.20	36.20	37.20	49.20	57.25	51.40	39.45	
	Gray Tubes	3.85	3.75	3.85	4.00	4.30	4.50	4.60	4.80	4.85	5.00	5.15	5.25	5.45	5.55	5.60	5.75	5.85	6.00	6.10	6.20	7.10	7.25	6.50	7.70	
HANES.	Invincible and Perfection Pink Tubes	2.90	3.00	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	5.00	5.10	5.20	5.30	
	Gray Tubes	3.00	3.10	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	5.00	5.10	5.20	5.30	5.40	
	Non-Skid	3.10	3.20	3.40	3.50	3.60	3.70	3.80	3.90	4.00	4.10	4.20.														

TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½			
HENDRIE	Plain	16.10	18.65	18.00	24.95	29.00	29.55	30.65	31.35	32.05	33.15	33.40	33.40	40.70	41.45	42.15	43.80	44.35	45.85	52.35	53.50	55.75	59.60	72.20			
	Non-Skid	19.20	20.20	21.30	29.25	33.05	34.20	35.10	36.25	37.05	38.05	38.65	38.65	46.55	47.25	48.05	51.60	55.30	59.20	61.90	62.45	63.75	68.40	85.25			
	California Non-Skid	22.05	23.15	24.40	33.60	37.95	39.35	40.30	41.70	42.55	43.85	44.50	44.50	53.50	54.40	55.20	59.30	60.10	62.95	61.90	62.45	63.75	78.40	98.00			
	Hendrie Gray Tubes	4.35	4.40	4.50	5.70	6.70	6.70	7.00	7.15	7.30	7.45	7.60	7.60	9.20	9.40	9.65	9.85	10.05	10.30	11.65	11.75	12.00	12.60	12.75			
HIGHWAY	California Red Tube	q14.85	q14.30	q18.35	q18.35	q21.75	q28.50	q29.20	q30.40	q31.25	q32.05	q33.15	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40	q33.40			
	Non-Skid	3.50	3.40	3.60	4.35	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35			
	Red Tubes	3.10	3.05	3.05	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70			
	Gray Tubes	3.10	3.05	3.05	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70			
HOOD	Plain	20.30	20.80	22.35	33.10	36.20	36.85	37.55	38.50	39.60	40.65	40.65	40.65	53.00	53.80	55.95	57.40	58.50	59.85	68.85	70.20	71.35	81.50	92.50			
	Non-Skid	24.30	24.85	27.00	42.90	43.75	44.65	45.85	46.75	48.95	51.45	51.45	51.45	61.05	61.95	62.80	63.90	64.50	65.75	75.30	76.40	78.00	96.50	100.65			
	Ribbed Tread	24.00	24.55	27.00	42.90	43.75	44.65	45.85	46.75	48.95	51.45	51.45	51.45	61.05	61.95	62.80	63.90	64.50	65.75	75.30	76.40	78.00	96.50	100.65			
	Puritan Head	q16.75	q16.75	q16.75	q19.00	q20.35	q21.25	q24.20	q28.50	q29.70	q30.40	q31.15	q32.30	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45	q33.45		
HOWE	Puritan Non-Skid	q18.95	q18.95	q18.95	q21.85	q23.50	q25.25	q28.50	q33.50	q35.75	q36.85	q37.55	q38.50	q39.60	q40.65	q40.65	q40.65	q40.65	q40.65	q40.65	q40.65	q40.65	q40.65	q40.65			
	Hood Red and Gray Tubes	3.85	4.00	4.50	5.20	5.80	5.90	6.00	6.10	6.25	6.40	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55			
	Puritan Red and Gray Tubes	3.40	3.45	3.45	4.80	5.40	5.40	5.15	5.25	5.35	5.50	5.90	6.30	6.85	7.05	7.15	7.25	7.35	7.60	8.30	8.45	8.60	10.00	11.00			
	Ribbed Tread	q20.85	q20.85	q20.85	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20	q25.20		
INDIANA	Non-Skid	2.90	3.00	3.20	3.75	4.25	4.70	4.75	4.85	5.00	5.15	5.40	5.60	6.10	6.15	6.25	6.45	6.65	6.95	7.80	8.00	8.10	9.20	9.45			
	Gray Tubes	3.55	3.65	3.80	4.55	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30			
	Red Tubes	3.55	3.65	3.80	4.55	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30			
	Button and Traction Non-Skid	13.50	14.00	18.25	23.80	27.85	28.35	30.00	30.45	31.65	37.90	37.90	37.90	40.85	41.75	42.50	43.25	43.95	53.75	50.90	51.75	53.65	63.10	83.10			
KELLY-SPRINGFIELD	Plain	15.15	15.70	20.75	19.95	21.35	23.60	26.95	31.50	32.05	33.90	34.30	35.35	43.40	43.40	43.40	46.35	47.25	48.00	48.75	49.45	60.00	59.95	61.05	63.10	77.45	112.05
	Driving Tread	2.85	2.90	3.35	3.45	3.60	3.75	3.95	4.60	4.85	5.05	5.20	5.35	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45
	Kant-Slip Tread	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.50	5.50	5.65	5.90	6.15	6.30	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90
	Red Tubes	q21.90	q20.95	25.45	32.50	34.95	35.80	38.80	43.15	44.55	46.20	47.50	49.05	51.80	53.70	55.65	57.60	59.55	61.50	63.45	65.40	67.35	69.30	71.25	73.20	75.15	77.10
KNIGHT	Blackstone Non-Skid	15.85	16.00	20.20	21.55	23.85	25.85	28.85	31.85	32.40	34.25	34.85	35.35	43.40	43.40	43.40	46.35	47.25	48.00	48.75	49.45	60.00	59.95	61.05	63.10	77.45	112.05
	Knight Plain	22.55	23.00	27.95	30.05	30.80	33.45	38.45	43.75	44.55	45.90	47.50	5.30	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10
	Blackstone Tubes	3.10	3.10	3.30	3.75	3.80	4.05	4.05	4.80	4.95	5.10	5.30	5.45	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95
	Knight Red Tubes	3.70	3.70	4.00	4.60	4.65	4.80	5.05	5.95	5.95	6.10	6.20	6.40	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65
KOKOMO	Plain	q15.25	q15.85	q20.60	q23.80	q25.20	q26.50	q28.80	q31.40	q33.65	q36.10	q38.70	q41.30	q43.90	q46.50	q49.10	q51.70	q54.30	q56.90	q59.50	q62.10	q64.70	q67.30	q69.90			
	Gridiron Non-Skid	q16.00	q16.65	q21.50	q25.20	q26.50	q28.80	q31.40	q33.65	q36.10	q38.70	q41.30	q43.90	q46.50	q49.10	q51.70	q54.30	q56.90	q59.50	q62.10	q64.70	q67.30	q69.90	q72.50			
	Standard Gray Tubes	3.25	3.30	3.60	4.05	4.25	4.45	4.65	5.30	5.40	5.50	5.65	5.95	6.10	6.20	6.30	6.45	6.65	6.85	7.05	7.25	7.45	7.65	7.85	8.05	8.25	8.45
	Evelaster Gray Tubes	3.45	3.55	3.95	4.45	4.65	4.85	5.05	5.60	5.70	5.85	6.05	6.20	6.45	6.65	6.85	7.05	7.25	7.45	7.65	7.85	8.05	8.25	8.45	8.65	8.85	9.05
KRE	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	5.65	5.75	5.90	6.15	6.30	6.55	6.70	6.85	7.10	7.25	7.50	7.65	7.80	8.05	8.20	8.45	8.60	8.85	9.00
	Standard Plain	15.75	16.00	19.40	21.45	23.45	26.75	28.10	30.00	31.05	32.55	33.20	34.20	35.55	36.20	37.20	38.50	39.15	40.15	41.45	42.15	43.15	44.45	45.15	46.15	47.45	48.15
	Non-Skid	19.70	20.15	21.35	29.85	33.40	36.50	39.90	43.00	46.80	48.35	52.85	53.75	58.55	59.45	60.35	61.40	62.50	63.60	64.70	65.80	66.90	68.00	69.10	70.20	71.30	72.40
	Puncture Proof Plain	26.90	28.00	30.80	34.50	36.50	40.25	43.35	47.75	50.05	51.35	57.90	58.65	63.45	64.15	64.85	65.55	66.25	66.95	67.65	68.35	69.05	69.75	70.45	71.15	71.85	72.55
McCREARY	Puncture Proof Gray Tubes	3.10	3.05	3.40	3.75	4.00	4.10	4.35	4.95	5.00	5.15	5.30	5.80	6.00	6.10	6.25	6.40	6.55	6.70	6.85	7.00	7.15	7.30	7.45	7.60	7.75	7.90
	Red Tubes	3.40	3.35	3.80	4.20	4.35	4.45	4.55	5.05	5.10	5.25	5.40	5.90	6.15	6.20	6.35	6.50	6.65	6.80	6.95	7.10						

Name	Trade Name and Tread	28x3	30x3 1/2	31x3 1/2	32x3 1/2	34x3 1/2	36x3 1/2	31x4	32x4	33x4	34x4	35x4	36x4	32x4 1/2	33x4 1/2	34x4 1/2	35x4 1/2	36x4 1/2	37x4 1/2	35x5	36x5	37x5	37x5 1/2	38x5 1/2
MARION	Plain Ribbed Non-Skid Gray Red	q13.20	q14.30	q15.05	q15.25	q19.50	q20.00	q20.40	q21.50	q23.00	q24.00	q25.00	q26.00	q28.00	q30.00	q31.50	q33.00	q34.50	q36.00	q38.00	q40.00	q42.00	q44.00	q46.00
		q14.05	q15.05	q16.40	q17.00	q21.50	q22.00	q22.40	q23.50	q25.00	q26.00	q27.00	q28.00	q29.00	q31.00	q32.50	q34.00	q35.50	q37.00	q39.00	q41.00	q43.00	q45.00	q47.00
		2.90	3.80	3.60	3.80	4.60	4.80	4.75	5.20	5.60	5.20	5.60	5.45	5.55	6.40	6.80	6.40	6.80	7.10	7.10	7.80	8.20	8.25	8.25
MASON	Plain Tread Ribbed Tread Non-Skid Gray Tubes Red Tubes	14.10	14.90	19.00	20.40	22.15	23.15	29.10	29.60	31.35	31.85	33.85	35.35	38.85	40.85	40.85	43.25	43.95	45.70	50.90	51.75	53.65	55.10	59.95
		14.85	15.05	20.35	21.95	23.95	27.25	30.30	30.70	32.60	33.10	34.95	36.30	38.90	42.70	44.80	45.05	46.80	47.45	49.25	50.10	51.95	53.10	59.95
		15.40	16.50	21.20	22.65	24.80	28.05	31.60	32.05	33.90	34.50	36.30	37.60	40.15	43.95	45.95	46.15	48.00	49.15	51.05	51.65	53.10	54.65	61.05
MICHELIN	Plain Tread Universal Tread Tubes	q14.95	q15.60	q21.50	q22.60	q25.40	q27.10	q31.50	q35.15	q35.40	q36.65	q38.25	q39.80	q44.75	q46.30	q47.00	q50.10	q51.15	q52.95	q58.40	q59.80	q60.50	q62.95	q64.50
		3.55	3.70	4.25	4.70	4.40	4.80	5.55	5.10	5.80	5.30	6.20	5.60	6.65	7.60	6.80	7.20	8.45	9.70	10.10	10.25	11.30	11.30	
		q18.70	q19.65	q24.00	q25.55	q28.05	q30.65	q35.35	q38.50	q37.55	38.90	40.20	42.45	44.50	45.70	47.85	49.85	52.00	53.80	59.65	60.35	62.35	63.35	68.95
MOHAWK	Plain Non-Skid Ribbed Tread Pure Gum and Red Tubes Combination Tube Keaton	q19.70	q21.05	q23.70	q24.45	q28.20	q30.80	q34.10	q35.10	q37.55	q38.55	q40.55	q42.05	48.10	52.90	54.05	56.45	58.90	63.35	67.05	70.35	73.35	75.00	86.65
		q22.55	q23.70	q25.10	q26.35	q30.30	q32.90	q36.65	q38.65	q40.85	q42.05	44.50	47.45	50.15	54.90	56.45	58.90	61.85	65.80	69.40	72.35	75.00	86.65	
		3.40	3.55	4.35	4.70	5.20	5.45	5.75	5.85	6.10	6.25	6.35	6.55	6.75	7.35	7.65	7.85	8.00	8.25	9.35	9.65	9.95	11.40	11.60
MONARCH	Gray Tubes Red Tubes	3.15	3.35	4.15	4.20	4.25	4.75	5.25	5.35	5.50	5.65	5.65	6.10	6.10	6.80	6.90	7.15	7.35	7.60	8.00	8.70	8.95	9.85	9.85
		3.45	3.70	4.65	4.70	4.75	5.25	5.85	5.95	6.10	6.30	6.30	6.75	7.50	7.75	7.90	8.10	8.45	9.00	9.00	9.75	9.85	10.25	11.30
		q19.05	q20.05	q25.45	q28.20	q30.90	q32.50	q35.10	q36.30	q37.65	q38.95	q40.10	q41.35	q42.45	46.35	53.70	55.65	59.60	64.05	68.45	72.85	77.45	82.15	c81.05
NABOB	Plain Tread Safety Traction Non-Skid Tubes	q25.05	q26.05	q31.30	q32.30	q35.70	q38.80	q43.15	q44.55	q45.90	q47.50	q49.05	q51.80	q53.70	q55.65	q57.60	q59.60	q61.60	q63.60	q65.60	q67.60	q69.60	q71.60	c69.30
		3.65	3.75	4.60	4.95	5.15	5.45	6.10	6.20	6.40	6.65	6.75	6.85	6.90	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	c112.05
		12.30	12.05	15.60	16.40	18.25	21.30	23.95	24.40	25.55	26.10	29.80	30.60	32.60	34.05	35.10	36.75	37.35	42.75	44.10	47.95	49.50	44.40	44.40
NATIONAL	Plain Non-Skid Gray Tubes Red Tubes	12.90	12.65	16.30	17.25	19.15	22.30	25.05	25.00	27.40	27.40	31.35	32.15	35.75	36.95	38.95	39.25	44.90	46.65	41.95	47.95	44.40	44.40	44.40
		3.25	3.20	3.95	4.00	4.05	4.80	5.00	5.10	5.25	5.40	6.10	6.30	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	8.55	8.55	
		3.55	3.50	4.40	4.45	4.50	5.30	5.60	5.70	5.85	6.00	6.80	6.90	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	9.40	9.40	
NEEDHAM	Plain Non-Skid Tubes	q13.20	q14.30	18.15	19.25	21.20	23.80	28.35	29.00	30.40	33.05	33.25	35.85	36.35	38.95	41.25	43.10	43.65	45.30	49.05	49.70	51.60	c47.20	c47.20
		2.80	2.90	20.90	21.90	24.30	27.25	32.85	33.35	34.85	35.50	36.95	37.45	40.05	40.55	42.05	43.50	45.00	46.50	50.25	50.95	52.85	54.75	c53.90
		3.30	3.40	3.30	3.40	3.45	3.60	4.55	4.70	4.85	4.95	5.05	5.15	5.30	6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain Non-Skid Shennong Non-Skid Pure Gum Gray Tubes	14.75	16.30	19.20	21.10	22.45	23.50	29.45	29.95	31.40	32.00	36.60	37.60	37.60	43.15	45.40	45.20	45.90	52.45	51.55	58.40	55.60	55.60	
		16.30	17.30	21.25	23.90	24.50	26.60	30.80	31.80	32.80	33.80	38.50	39.50	43.10	48.25	48.25	48.25	48.25	55.20	54.10	61.25	57.35	57.35	
		3.20	3.20	28.15	32.15	32.15	34.40	5.20	5.30	5.40	5.50	6.75	5.90	5.90	7.10	7.25	7.50	7.75	8.80	8.70	9.00	9.00	9.00	
NORWALK	Plain Non-Skid Gray Tubes Red Tubes	q21.60	q22.75	q29.15	q31.10	q33.85	q35.80	q43.05	q43.85	q46.10	q48.35	q50.10	q52.00	q54.00	q56.00	q58.00	q60.10	q62.20	q64.30	q66.40	q68.50	q70.60	q72.70	c73.45
		3.30	3.35	4.15	4.25	4.40	5.20	5.40	5.55	5.70	5.85	6.25	6.35	7.15	7.15	7.15	7.15	7.15	7.15	8.90	9.05	9.20	10.55	10.75
		3.05	3.70	4.35	4.60	4.80	5.75	5.95	6.15	6.30	6.45	6.90	6.95	6.95	7.90	7.90	7.90	8.10	8.35	8.65	8.90	10.15	11.60	11.85
PALMER	Tubes	6.35	6.60	6.60	7.00	7.00	7.00	8.45	8.80	9.15	9.45	9.80	10.10	10.25	11.10	11.40	11.75	12.25	13.60	13.80	14.15	14.15	14.15	14.15
		13.80	14.20	18.45	19.45	21.50	27.90	29.85	28.25	28.80	30.10	30.80	37.20	32.85	32.85	41.60	43.45	44.15	45.90	49.55	57.85	52.55	52.55	52.55
		14.50	14.90	19.35	20.35	22.45	29.25	4.95	4.75	4.85	5.00	5.15	5.75	5.50	6.25	6.45	6.65	6.85	7.80	8.60	8.10	8.10	8.10	8.10
PARA-BELL	Plain Non-Skid Gray Tubes Red Tubes	3.30	3.35	4.20	4.25	4.30	5.05	5.50	5.40	5.55	5.70	6.45	6.10	6.10	6.10	6.10	6.10	6.10	7.00	7.15	7.50	7.50	7.50	7.50
		11.00	11.85	15.35	16.20	17.65	20.00	24.00	24.95	25.20	25.75	26.95	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.50	45.30	45.30
		12.85	12.00	16.95	18.00	19.65	22.40	27.10	27.90	29.50	30.50	31.50	32.50	33.50	38.00	38.00	38.00	40.15	41.40	42.00	48.50	48.50	50.00	50.00
PEARCE	Merton Plain Non-Skid Germantown Card Plain Non-Skid Red Tubes	17.50	17.50	21.95	22.35	24.00	27.50	36.35	34.75	35.35	36.10	38.10	42.35	43.50	45.25	46.75	48.75	50.50	52.00	56.50	58.15	58.15	58.15	
		3.25	3.45	3.95	4.10	4.25	4.50	5.35	5.45	5.75	5.95	6.20	6.40	6.60	6.80	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	8.75
		16.80	16.80	21.35	22.00	24.95	28.00	33.30	34.00	35.70	36.45	38.45	40.90	42.90	44.90	46.90	48.90	50.90	52.90	54.90	56.90	58.90	60.90	60.90
PEERLESS	Non-Skid Gray Tubes Red Tubes	3.05	3.45	3.65	3.80	4.05	4.20	4.90	5.05	5.25	5.35	5.95	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35
		3.40	3.80	3.95	4.15	4.20	4.40	5.35	5.50	5.70	5.95	6.25	6.55	6.85	7.15	7.45	7.75	8.05	8.35	8.65	8.95	9.25	9.55	9.55
		12.80	13.45	17.60	19.50	20.65	24.00	27.00	27.40	28.40	29.40	30.40	33.50	34.45	35.40	36.40	37.40	38.40	41.40	42.05	47.35	53.60	50.10	65.15
PENNSYLVANIA	Bar O Circle Vacuum Cup Ehony Tread Ton-Tested Gray Tubes	17.15	17.70	22.60	24.20	26.75	30.55	32.10	32.65	33.40	34.15	35.40	37.60	38.70	40.00	41.30	42.60	43.90	45.20	46.50	47.80	49.10	50.40	50.40
		2.80	2.90	3.40	3.55	3.70	4.05	4.90	4.95	5.05	5.25	5.45	5.65	5.85	6.05	6.25	6.45	6.65	6.85	7.05	7.25	7.45	7.65	7.65
		18.00	19.25	23.20	24.65	27.50	29.75	32.70	33.75	34.75	35.75	36.75	37.75	38.75	40.75	41.75	42.75	43.75	45.75	46.75	48.75	49.75	51.75	51.75
PERFECTION	Plain Non-Skid Gray Tubes Red Tubes	17.15	17.70	22.60	24.20	26.75	30.55	32.10	32.65	33.40	34.15	35.40	37.60	38.70	40.00	41.30	42.60	43.90	45.20	46.50	47.80	49.10	50.40	50.40
		2.80	2.90	3.40	3.55	3.70	4.05	4.90	4.95	5.05	5.25	5.45	5.65	5.85	6.05	6.25	6.45	6.65	6.85	7.05	7.25	7.45	7.65	7.65
		18.00	19.25	23.20	24.65	27.50	29.75	32.70	33.75	34.75	35.75	36.75	37.75	38.75	40.75	41.75	42.75	43.75	45.75	46.75	48.75	49.75	51.75	51.75
PHARIS	Plain Non-Skid Gray Tubes Red Tubes	17.15	17.70	22.60	24.20	26.75	30.55	32.10	32.65	33.40	34.15	35.40	37.60	38.70	40.00	41.30	42.60	43.90	45.20	46.50	47.80	49.10	50.40	50.40
		2.80	2.90	3.40	3.55	3.70	4.05	4.90	4.95	5.05	5.25	5.45	5.65	5.85	6.05	6.25	6.45	6.65	6.85	7.05	7.25	7.45	7.65	7.65
		18.00	19.25	23.20	24.65	27.50	29.75	32.70	33.75	34.75	35.75	36.75	37.75	38.75	40.75	41.75	42.75	43.75	45.75					

NOTE—The letter *c* means that a CLINCHER tire is NOT made in this size; *q* that a QUICK DETACHABLE is NOT made in this size, and *s* that a STRAIGHT SIDE is NOT made in this size.

Name	Trade Name and Tread	28-3	30-3	32-3	30-3 1/2	31-3 1/2	32-3 1/2	34-3 1/2	36-3 1/2	30-4	31-4	32-4	33-4	34-4	35-4	36-4	32-4 1/2	33-4 1/2	34-4 1/2	35-4 1/2	36-4 1/2	37-4 1/2	35-5	36-5	37-5	37-5 1/2	38-5 1/2
TOLIVER (Continued)	4 000-Mile Plain Non-Skid	13.40	17.45	18.25	17.45	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25
	Gray Tubes	3.10	3.40	3.75	3.40	3.75	3.85	4.55	4.55	4.95	4.75	4.85	5.00	5.15	5.80	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	Red Tubes	3.60	3.90	4.25	3.90	4.25	4.45	4.65	4.65	5.05	5.50	5.85	6.00	6.25	6.40	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60
	Puncture-proof Inner Tubes	4.40	4.55	5.35	4.55	5.35	5.45	5.50	5.50	7.10	6.80	6.95	7.15	7.35	8.30	8.60	8.60	8.60	8.60	8.60	8.60	8.60	8.60	8.60	8.60	8.60	8.60
TYRIAN	Holdite Non-Skid	16.00	17.60	18.85	17.60	18.85	19.85	21.85	21.85	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
	Holdite Non-Skid	17.30	18.85	22.10	18.85	22.10	23.25	25.10	25.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10	26.10
	Extra Heavy Red	3.70	3.85	4.25	3.85	4.25	4.35	4.40	4.80	5.60	5.75	5.90	6.10	6.20	6.40	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65
	Urethane Non-Skid	13.25	14.50	15.75	14.50	15.75	16.85	18.85	18.85	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
UNITED STATES	Urethane Non-Skid	15.25	16.50	17.75	16.50	17.75	18.85	20.85	20.85	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
	Chain Non-Skid	16.50	17.75	19.00	17.75	19.00	20.15	22.15	22.15	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30
	Nobby Non-Skid	18.00	19.25	20.50	19.25	20.50	21.65	23.65	23.65	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80	24.80
	Royal Card Non-Skid	20.70	22.00	23.30	22.00	23.30	24.45	26.45	26.45	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60	27.60
VICTOR	Gray Tubes	2.85	3.00	3.15	3.15	3.35	3.85	4.00	4.30	4.70	4.85	5.00	5.15	5.25	5.45	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65
	Red Tubes	3.65	3.75	4.00	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.25	6.55	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65
	Plain	17.10	18.05	19.00	18.05	19.00	20.15	22.15	22.15	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30	23.30
	Ribbed	18.90	20.25	21.50	20.25	21.50	22.65	24.65	24.65	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80	25.80
VICTALIC	Gray Tubes	3.10	3.30	3.50	3.30	3.50	4.15	4.25	4.40	4.80	5.40	5.55	5.70	5.85	6.25	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30
	Red and Gray Tubes	3.75	3.85	4.00	4.00	4.60	4.75	4.85	5.10	5.25	5.95	6.05	6.15	6.30	6.45	6.90	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95
	Extra Heavy Gray Tubes	4.25	4.35	4.60	4.60	5.15	5.35	5.50	5.85	6.00	6.70	6.80	7.05	7.20	7.35	7.55	7.70	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
	Indian Red Tubes	3.60	3.70	3.85	3.85	4.15	4.25	4.40	4.80	5.20	5.40	5.55	5.70	5.85	6.25	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30
WILSON	Wearwell Plain	12.55	13.80	15.05	13.80	15.05	16.20	18.20	18.20	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35	19.35
	Wearwell Non-Skid	13.15	14.40	15.65	14.40	15.65	16.80	18.80	18.80	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
	Wearwell Gray Tubes	3.10	3.30	3.50	3.30	3.50	4.15	4.25	4.40	4.80	5.40	5.55	5.70	5.85	6.25	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30
	Wearwell Red Tubes	3.40	3.60	3.80	3.60	3.80	4.45	4.55	4.70	5.10	5.70	5.85	6.00	6.15	6.55	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60
WOODWORTH	Wilson Non-Skid	3.40	3.60	3.80	3.60	3.80	4.45	4.55	4.70	5.10	5.70	5.85	6.00	6.15	6.55	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60
	Wilson Gray Tubes	3.70	3.90	4.10	3.90	4.10	4.75	4.85	5.00	5.40	6.00	6.15	6.30	6.45	6.85	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90
	Wilson Red Tubes	4.20	4.40	4.60	4.40	4.60	5.25	5.35	5.50	5.90	6.50	6.65	6.80	6.95	7.35	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40
	Plain	23.90	25.30	26.70	25.30	26.70	27.85	29.85	29.85	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00
ZEE-ZEE	Non-Skid Tubes	23.75	25.15	26.55	25.15	26.55	27.70	29.70	29.70	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85	30.85
	"Z" Tread Non-Skid	3.81	4.11	4.35	4.11	4.35	4.71	4.82	4.93	5.05	5.16	5.28	5.40	5.52	5.92	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07
	Brazilian Tubes	10.50	11.70	12.90	11.70	12.90	14.10	16.10	16.10	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25
	Samson Tread Non-Skid	14.10	15.30	16.50	15.30	16.50	17.65	19.65	19.65	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

These Tables are for your constant consultation and should
be of great value in the conduct of your business—
SAVE THEM

Trucks

MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model		TIRES		Price of Chassis		MOTOR										TRANSMISSION										BRAKES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Whelbase in Inches		Kind		Front		Rear		Make Engine		No. of Crankshaft Bearings		Cylinders Bore and Stroke		S. A. E. H.P.		Cylinders Cast		Spark Plug		Cooling—Water Circulation		IGNITION				Electric System—Type and Make		Governor		Speed		FUEL SYS.		CLUTCH		GEARSET			Springs, Make		Universal, Make		Final Drive		Propulsion Taken By		Torque Taken By		Hand Brake		Foot Brake		Steering Gear																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

Model	Year	Price	Engine	Transmission	Drivetrain	Chassis	Body	Options	Notes
Clydeville	45	145	180	180	180	180	180	180	180
Clydeville	46	180	180	180	180	180	180	180	180
Clydeville	47	180	180	180	180	180	180	180	180
Clydeville	48	180	180	180	180	180	180	180	180
Clydeville	49	180	180	180	180	180	180	180	180
Clydeville	50	180	180	180	180	180	180	180	180
Clydeville	51	180	180	180	180	180	180	180	180
Clydeville	52	180	180	180	180	180	180	180	180
Clydeville	53	180	180	180	180	180	180	180	180
Clydeville	54	180	180	180	180	180	180	180	180
Clydeville	55	180	180	180	180	180	180	180	180
Clydeville	56	180	180	180	180	180	180	180	180
Clydeville	57	180	180	180	180	180	180	180	180
Clydeville	58	180	180	180	180	180	180	180	180
Clydeville	59	180	180	180	180	180	180	180	180
Clydeville	60	180	180	180	180	180	180	180	180
Clydeville	61	180	180	180	180	180	180	180	180
Clydeville	62	180	180	180	180	180	180	180	180
Clydeville	63	180	180	180	180	180	180	180	180
Clydeville	64	180	180	180	180	180	180	180	180
Clydeville	65	180	180	180	180	180	180	180	180
Clydeville	66	180	180	180	180	180	180	180	180
Clydeville	67	180	180	180	180	180	180	180	180
Clydeville	68	180	180	180	180	180	180	180	180
Clydeville	69	180	180	180	180	180	180	180	180
Clydeville	70	180	180	180	180	180	180	180	180
Clydeville	71	180	180	180	180	180	180	180	180
Clydeville	72	180	180	180	180	180	180	180	180
Clydeville	73	180	180	180	180	180	180	180	180
Clydeville	74	180	180	180	180	180	180	180	180
Clydeville	75	180	180	180	180	180	180	180	180
Clydeville	76	180	180	180	180	180	180	180	180
Clydeville	77	180	180	180	180	180	180	180	180
Clydeville	78	180	180	180	180	180	180	180	180
Clydeville	79	180	180	180	180	180	180	180	180
Clydeville	80	180	180	180	180	180	180	180	180
Clydeville	81	180	180	180	180	180	180	180	180
Clydeville	82	180	180	180	180	180	180	180	180
Clydeville	83	180	180	180	180	180	180	180	180
Clydeville	84	180	180	180	180	180	180	180	180
Clydeville	85	180	180	180	180	180	180	180	180
Clydeville	86	180	180	180	180	180	180	180	180
Clydeville	87	180	180	180	180	180	180	180	180
Clydeville	88	180	180	180	180	180	180	180	180
Clydeville	89	180	180	180	180	180	180	180	180
Clydeville	90	180	180	180	180	180	180	180	180
Clydeville	91	180	180	180	180	180	180	180	180
Clydeville	92	180	180	180	180	180	180	180	180
Clydeville	93	180	180	180	180	180	180	180	180
Clydeville	94	180	180	180	180	180	180	180	180
Clydeville	95	180	180	180	180	180	180	180	180
Clydeville	96	180	180	180	180	180	180	180	180
Clydeville	97	180	180	180	180	180	180	180	180
Clydeville	98	180	180	180	180	180	180	180	180
Clydeville	99	180	180	180	180	180	180	180	180
Clydeville	100	180	180	180	180	180	180	180	180

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TRUCKS—Continued

TIRES			MOTOR										TRANSMISSION										BRAKES										
Size in Ins.		Kind	Price of Chassis	Wheelbase in inches	Make Engine	No. of Crankshaft Bearings	Cylinders and Stroke	S. A. E. Hp.	Cylinders Cast	Spark Plug	Cooling—Water Circulation	IGNITION		Electric System—Type and Make	GOVERNOR		SPEED		FUEL SYS.		CLUTCH	GEARSET			Rear Axle	Springs, Make	Universal, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear
Front	Rear											Type	Make		Type	Drive	Make	Motor in r.p.m.	Truck in m.p.h.	Carburetor Make		Tank Location	Type	Make										Type	Make	Location	Speeds	Total Gear Reduction in High
Menominee.....H	36x5 1/2	36x5 1/2	2190	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	800	15	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Genr.	
Menominee.....D	36x5 1/2	36x5 1/2	2615	144"	Cont.	3	4-3 1/2x5 1/2	27 2	4	D. s.	Eismann.	h.	.....	opt.	750	14	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Genr.	
Menominee.....C	36x5 1/2	36x5 1/2	3580	160"	Cont.	3	4-3 1/2x5 1/2	32 4	2	D. s.	Eismann.	h.	.....	opt.	750	12	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Genr.	
Menominee.....J	36x5 1/2	36x5 1/2	4800	160"	Cont.	3	4-3 1/2x5 1/2	32 4	2	D. s.	Eismann.	h.	.....	opt.	750	12	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Genr.	
Modern.....30	34x3 1/2	34x3 1/2	1500	126"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Ross.	
Moreland.....17-N	36x5 1/2	36x5 1/2	2050	126"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1000	16	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Ross.	
Moreland.....17-B	36x5 1/2	36x5 1/2	3750	144"	Cont.	3	4-3 1/2x5 1/2	27 2	4	D. s.	Eismann.	h.	.....	opt.	1000	16	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Ross.	
Moreland.....17-C	36x5 1/2	36x5 1/2	3375	144"	Cont.	3	4-3 1/2x5 1/2	32 4	2	D. s.	Eismann.	h.	.....	opt.	1000	16	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Ross.	
Moreland.....17-G	36x5 1/2	36x5 1/2	4150	162"	Cont.	3	4-3 1/2x5 1/2	36 1	2	D. s.	Eismann.	h.	.....	opt.	1000	16	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Ross.	
Moreland.....17-J	36x5 1/2	36x5 1/2	5000	180"	Cont.	3	4-3 1/2x5 1/2	36 1	2	D. s.	Eismann.	h.	.....	opt.	1000	16	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Ross.	
Moreland.....17-K	36x5 1/2	36x5 1/2	5000	180"	Cont.	3	4-3 1/2x5 1/2	36 1	2	D. s.	Eismann.	h.	.....	opt.	1000	16	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Warner	
Moreland.....17-L	36x5 1/2	36x5 1/2	1995	144"	Cont.	3	4-3 1/2x5 1/2	27 2	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Munksgaard.....20	34x3 1/2	34x3 1/2	1495	130"	own.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nash.....2017	36x5 1/2	36x5 1/2	3250	124"	Budh.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	ext-shit.	
Nash.....2017	36x5 1/2	36x5 1/2	3250	124"	Budh.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	ext-shit.	
Nash.....2017	36x5 1/2	36x5 1/2	1875	144"	own.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	ext-shit.	
Nelson & LeMoon.....E1	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E2	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E3	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E4	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E5	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E6	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E7	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E8	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E9	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E10	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E11	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E12	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E13	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E14	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E15	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E16	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E17	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E18	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E19	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E20	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.	h.	.....	opt.	1200	19	Stumg.	g. s.	dd.	B-Lipe	select	un-t-m.	39	25	Timkn.	Spicer.	worm.	rad-rd.	spgs.	int-t-w	Lyvine	
Nelson & LeMoon.....E21	36x5 1/2	36x5 1/2	2250	144"	Cont.	3	4-3 1/2x5 1/2	22 5/8	4	D. s.	Eismann.																						

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MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 11

New York, March 13, 1918

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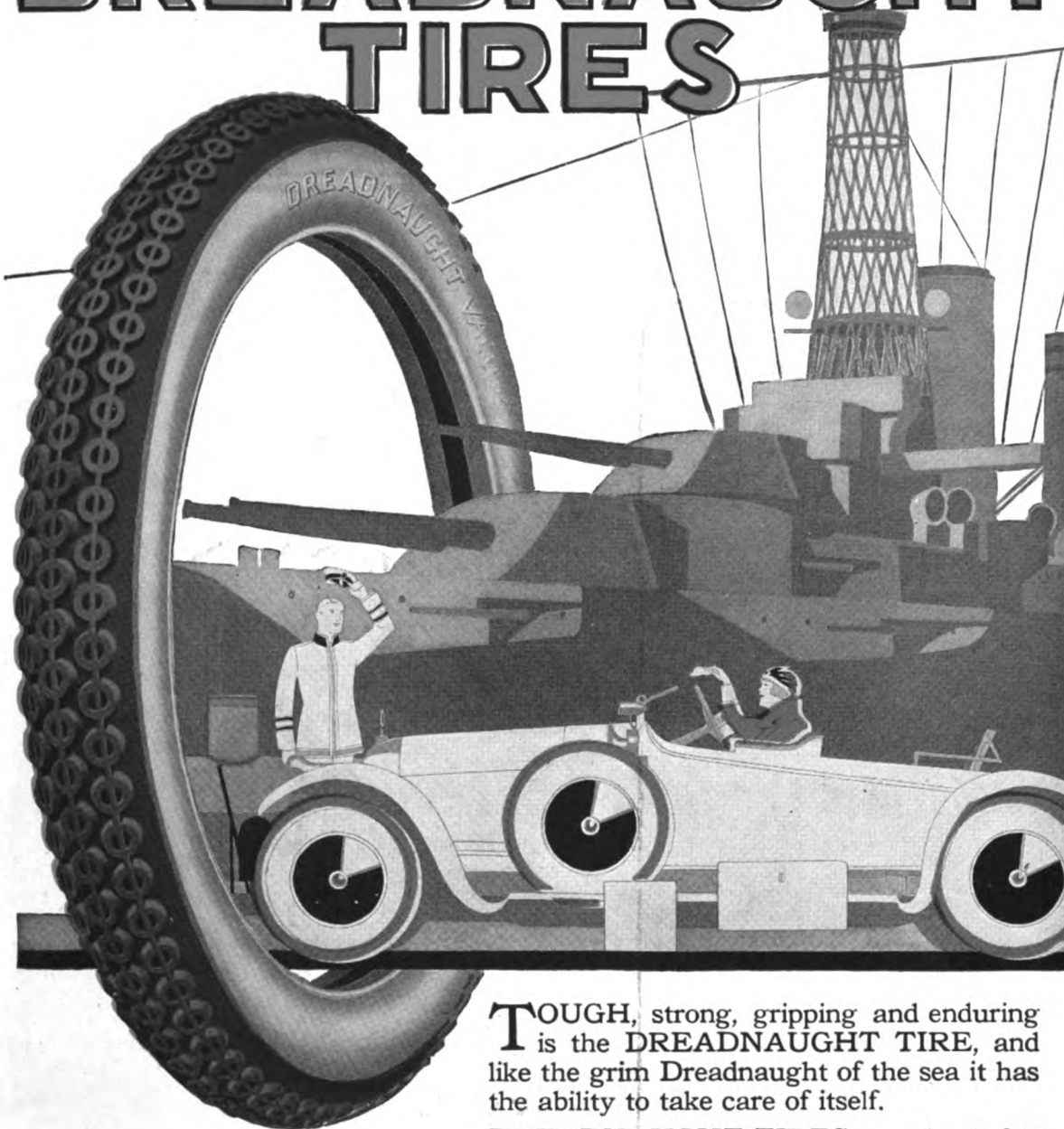


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DEALERS, JOBBERS AND GARAGEMEN

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(Patented)



The user of a car or truck notes only the bare fact of failure. He concerns himself little with the cause of that failure. He puts the full responsibility up to the builder of the car or truck. His condemnation covers the machine as a whole—no matter how small the part to which the failure is directly chargeable.

Failure of a bearing in magneto or lighting generator means, in effect, failure of the car or truck. Responsible builders, therefore, have protected themselves by adopting magnetos and lighting generators embodying the security against bearing troubles for which "NORMA" stands.

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Selden Trucks Will Help Win the War

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Release the railroads from short hauls up to 50 or 100 miles or more. Give them a chance to handle the long hauls on schedule time.

To secure maximum service at minimum cost, install big, powerful Selden Trucks—trucks that will bear the heavy burdens

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Massive construction—colossal strength—gigantic motive power—abundant speed in operation—proven power of endurance, with sufficient energy in reserve—these “IN-BUILT QUALITIES” of SELDEN TRUCKS give them the “brute force” to work under high pressure indefinitely without weakening.

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Selden Truck Sales Company
ROCHESTER, N. Y., U. S. A.



MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, March 13, 1918

No. 11

Give Him a Lift



The Third Liberty Loan will be out April 6. When other men are GIVING lives it is a small thing to LOAN our money. Get ready!

The Old Order Changeth

*Yesterday's Dealer Can Succeed Only on To-day's Methods
—War Will Weed Out the Weak—Only the Strong
Can Endure—Business Change Is Imperative*

WHAT the war means to the dealer was told by E. E. Peake, Kansas City, at the second monthly territorial business dinner of the Cleveland dealers' association. Other meetings are to be held. It was an idea worthy of use by other cities. Cleveland has found these business affairs mighty helpful at this time. Peake is to talk also to the dealers in Cedar Rapids, Ia., to-day, March 13.

CLEVELAND, March 9—The dealer of last year cannot go through 1918 unless he changes his methods, his ideas and his business.

Plans, methods and ideas that brought success in the recent past can bring but failure to-day, said E. E. Peake of Kansas City, at a dealers' meeting here to-day, for, he said, the "old order changeth."

It was the second monthly business dinner of the car and accessory dealers in north Ohio; 300 were present. President R. J. Schmunk presided. The meeting was in the Statler Hotel. The first meeting was held during the Cleveland show, Jan. 21, when Hugh Chalmers told Ohio's dealers what they must do as business men to help win the war.

The meeting of Jan. 21 proved so stimulating to business that the directors of the Cleveland association voted to hold other meetings, of which to-day's is the second. Other meetings are to be held, at which ideas will be set forth that will furnish plans and inspiration for Ohio's dealers.

The need for business analysis was the keynote of

Peake's address. He asserted that no dealer can hope to continue to-day unless he gets maximum efficiency out of his business, that salesmanship must be more scientific and productive in proportion to the effort, that advertising must be studied, and that the man who directs salesmen must be a director in deed as well as name.

The salesman who isn't good is not to blame, said Peake. The fault lies at the door of the sales manager, whose duty it is to teach salesmen and make them better.

Service must be made something that is something and not be a worthless article given away without charge and no good when received. Trading should be brought to the point where the buyer does not "make a monkey out of the dealer."

Dealers must get their noses off the grindstone and look at their businesses, the whole trade must get back of the good roads idea, and—everybody must recognize the Third Liberty Loan of April 6 next as an opportunity and not a burden. Peake said:

I might say a few words as to business conditions in the West. The business averaged for February an increase of 150 per cent in the sales of leading cars over February of last year, which is certainly a wonderful increase. Business is much better in Kansas City than it was a year ago.

Business has been exceedingly good. Our motor show opened it up. Before I go any further I want to give credit to the big advertising campaign which we carried on. We used \$10,000 worth of advertising. It was properly written and placed in full pages under the name of the Kansas City Motor Car Dealers' Association.

That \$10,000 invested sold over a quarter of a million dollars' worth of automobiles on the floor of the show, which is the greatest thing that we have ever done since we had a trade organization.

Our sales during the show were much better than they ever were before.

People, you know, were having automobiles delivered to them down the alleys. *They were ashamed to buy a motor car before this advertising came along. They were afraid they would be criticized for buying automobiles in war times.*

The Wrong Attitude

That is the most foolish position that any person could possibly take, to feel that they must apologize to anybody or to any set of bodies for buying an automobile so that a man can speed up his business, but that advertising stopped that entire condition.

In 30 days' time the business out there took on a new impetus. *It will do it with anyone who will put on a series of advertisements of that kind. No*

names were attached to it and no cars mentioned. All the articles were written with the idea of furnishing the fundamental reason why people should own motor cars.

If you will look over the automobile show advertising that we have been having in this country for the last five years, you will find that the *biggest reason why people should own motor cars has not been put into advertising.*

It is time that we put into advertising the real thing that an automobile is for, and that is the matter of transportation and speeding up a man's business. You don't find many people any more going without a cash register. They find that it is a good investment to have a cash register. You don't find people going without typewriters, dictaphones and telephones, and yet a motor car will make more money for the investment on

Be Your Own Boss

How long are we going to be made monkeys of by the people who are buying automobiles of us? Isn't it about time that we dictate our own terms to a man when he comes into our store to buy something?

an average for a business man than anything that he has connected with his business.

Those are the things that you must get to the people at this time if you are going to speed up motor car sales. The idea, as we put it over, went over the top big. It is the greatest investment we ever had.

Know Your Business

You folks probably know more about your own business than I do, and I am not here to tell you anything new about your business. A man should know his business better than anyone else. If he does not, then he is not a good business man, cannot be successful, and won't be in business long. That's one thing sure.

Your business, as I understand it, is divided up into about four parts. In other words, there are four distinct keynote things to the motor car business from the dealers' standpoint, and they are not new. You know as well as I do that there is nothing new. It is the same thing told differently.

But if I can say things to you that you *already* know, but that you have forgotten you did know, if I can get you to do the things that you *know* you should do, and get you to stop doing some of the things that you *know* you should stop doing, then I will feel that my trip out here has not been in vain.

Four Cornerstones

Into what parts is your business divided? It is divided, first, into service; second, into advertising; third, into trading automobiles, and fourth, into the salesmanship end of it.

I don't know what you are doing on the service question, whether you are giving it or selling it, but *service that can't be sold isn't very good service*. I believe that dealers should sell service that is worth the money.

Don't sell your automobile on the promise of poor service given for nothing.

All of these points are in connection with my subject. I like that subject, because it really means something, "the old order changeth." Things have changed. You are facing new conditions. There are a lot of things new and different than they were before things began to happen and happened so fast.

But we can still make money in the motor car business. Men have made money as dealers in the motor car business not because of any particular busi-

ness ingenuity on their part but because business was so good that they made money in spite of themselves. *The old order has changed when it comes to that.*

The New Order

You used to give away 10 per cent of the list price of the car on service and still make money. Why? Because you were selling more automobiles than you will get to sell this year, and you were doing a lot of other things that you can't do any more. You made money at it then, but you can't make money at it now.

The second point is advertising. I think that the advertising of the automobile dealers has been the poorest managed proposition that I have ever seen. Take the dealers in Cleveland or Kansas City or any other town where it has not been consolidated through an association of some kind, and the dealer is putting out ten dollars here, ten dollars there and twenty-five dollars some place else without knowing anything about the circulation, or without making a definite study, and *the chances are that that advertising is not worth the paper that it is written on so far as results are concerned.*

Investigated Advertising

In Kansas City we tried to eliminate that by not placing advertising without investigation. You must know when you spend money in an advertising medium that that medium has a certain circulation, and you must feel that you are going to get some of that money back from that advertising or else keep your money where it will do you more good.

We have had a secret investigation of advertising mediums, and our members do not advertise in theater programs and things of that kind unless the matter has been gone into very carefully and decided upon. As far as our business is concerned, we don't think a great deal of theater program advertising.

My third point is about the trading in of old cars. I don't suppose you have any exchanges. They call it exchange automobiles now. They are getting away from the word "used" automobiles. They are using the word "exchange," which I believe is a good thing to do.

We chased the "pleasure" out of automobiles and took on "passenger," and now we are going to change the word "used" to "exchange."

You know, this trading proposition has been very serious. I don't suppose

it is a serious proposition in Cleveland. I suppose all of you have made a great deal of money by letting the other fellow talk you out of a new car. But you can't get away with that now.

I want to say that it is my opinion that the automobile dealers are going to be able to sell every automobile that they can get to the customer. As far as the war is concerned, I do not believe that it is going to affect the sale of motor cars. We all know where the danger is from the war side. It is the question of getting the material and getting the cars made and then getting them delivered to the customer. That is going to be our trouble.

Be an Automotive Dealer

So if you are going to get fewer automobiles this year than you have in the past, you are up against the proposition of taking on something else that you can make money out of, commercial cars or tractors or something of that sort. You must either do that or you must in some other way cut down the expenses of your business. The best way to cut the expenses of your business is to work on these four things right here: Service, advertising, trading in old cars, and salesmanship.

If the automobile dealers of this country will take those four items and *concentrate their efforts on inside organization*, on getting money for what they do in the way of service, and be careful of the advertising, *the motor dealers in this country will have profited by the war instead of losing by the war, as far as business is concerned.*

Get On Solid Rock

They will learn by this scrutiny on these four items how they can get their business on solid rock instead of having it up in a tree where anybody can take a shot at it. I have been through this proposition with dealers in the West for a good many years.

I hold, and I have held, that a man who is making from 200 to 300 per cent, as many dealers have done on the investment in their business, is making an abnormal amount. In the real estate business or in the insurance business we think if we can make 20 or 25 per cent profit on the investment we are doing well. But we find that automobile dealers have made enormous percentages on their business investments.

Their Own Fault

I have been preaching for five years that that was not always going to be, and that unless a man had his business organized on solid rock something was going to come along some day and knock it amidstips. Now the war has come, and I want to tell you that *unless the automobile dealers in this country get their business better organized with regard to these four items, the next twelve months will be disastrous for them*—not because of the war and not because of a lack of business, but *because of lack of organization of their own business.*

As far as trading of cars is concerned, you must remember that in selling automobiles you are selling to pretty good

salesmen. The business men that come down to trade in their old cars for your new ones are not fools. Many of them are smarter than the men they are dealing with, else they wouldn't deal with them.

Now, I don't mean anything by that except that they are better salesmen than you are. Why? Because they sell you their old car and you don't sell them your new one.

There is another thing you must not do. You must not sit down across the table from one of your automobile salesmen and let him sell you somebody else's old car. You know they do that. "Here's a car that is almost like new." "Here's one in elegant condition. Why, his wife went out with a polish rag every morning and shined it all up."

Be Your Own Boss

How long are we going to be made monkeys of by the people who are buying automobiles of us? Isn't it about time that we dictate our own terms to a man when he comes into our store to buy something?

Did you ever take an old pair of pants back and try to trade them in on a new pair? There is just as much sense to it. Yes; trade automobiles. You will have to trade.

About 60 per cent of the sales are to people who already own automobiles. The only way that you can cut down that percentage is to educate people to buy automobiles. And don't have it be a trade. Sell your new car and make a moderate allowance.

Make an allowance that you are willing to inventory that car at to your bank if they want a financial statement from you. When you trade cars in on that basis, gentlemen, as a quick asset—one that you can go out to-morrow and get your money on—then you are on the right track to making money, and NOT BEFORE.

Now, the selling end of the business, in my opinion, is far from being as efficient as it can be made and must be made, because the order has changed. A great many dealers are not very good salesmen themselves.

Whenever a man begins to grow in business, it is not when he knows his strong point, it's when he knows his weak ones.

Have a Sales Manager

If I own a business and one of the functions of that business is salesmanship, I am not going to kid myself along that I am a good salesman when I know I am not, because I own the business. I am not going to be ashamed to step out and get a real salesman to come in and manage that end of my business for me. There are a lot of dealers in the country who are not good salesmen.

A good sales manager is one who can educate salesmen and make them better salesmen next year.

A man who is not a better salesman next year than he was the past isn't worth keeping around. Men must improve. I don't care whether a man is 20 years old or 50 years old. Business

men are going to school all their lives, just as long as they are in business. Where do they get their education from? From coming in contact with people who know more on a subject than they themselves know. The egotist is the only man who will not learn, because he will not admit that he has any weaknesses.

And so I ask you to stand in front of a mirror once in a while and say, "Am I a real salesman, or am I not? Do I know how to educate my men so that they can sell more automobiles next year than this year?"

Educate Your Salesmen

If you decide you are not, go into the market and get a man that can remove that weakness from your business. *I don't blame any automobile salesman for not being a better salesman than he is if the man he is working for does not make him a better salesman.* What must be done to speed up and keep up with the sales and the profits that we have been enjoying in this business is scientific salesmanship, and a scientific understanding and training of the men in our employ.

Automobile salesmen have had to change their entire line of conversation because the old order has changed. You don't talk "stream line" so much any more, or "nifty little cars." Are you going to let your salesmen blunder along through this year talking as they used to talk to sell automobiles, saying, "She is a daisy; she is a bird; take her out and she will do seventy," or are you going to say that you are selling transportation as a business proposition pure and simple? If you are not working with your salesmen along those lines, you are having a lot of lost motion in your business.

Organize! Organize! Organize!

We are busy in this country, and we must remember, too, that the biggest thing in this country and in the world is the war question. We must not try to get away from that. We must realize that to get the attention of a man on any other subject except the war takes considerable effort to-day, because this big thing is in his mind first and foremost if he is a loyal American citizen.

It takes more effort and more argument to do this same business this year than last. In other words, you must organize from beginning to end. You should take your salesmen into your confidence once a week. Sit down with them and say, "Boys, we have got to work like the very dickens this year to keep our business up to where it is paying, and I want you to help, and I want you to come to me whenever you need help."

I don't believe that a great many dealers know exactly what their salesmen are doing all the time. I know they didn't used to when I was a salesman.

A man running an automobile business with four or five city salesmen should know why that particular salesman is not getting along well with a certain prospect, and that salesman should be in your confidence. He should

not be afraid of his job. He should come to you and say, "Mr. Dealer, this is the third time I have been up to see Mr. Smith about a trade, and he and I don't seem to get on. Send someone else up there."

A great many sales are lost, gentlemen, simply because the two people that come together are not coming together right. A man should keep close track of his salesmen.

When you get the name of a prospective purchaser and turn it over to your salesman, he should familiarize himself not only with the name of the prospect but he should know something about the man that he is going to try to sell. He should know what clubs he belongs to, where he can be found certain times of the day, whether or not he is a nervous man who hates to be bothered about his office, and all those things.

Do You Act?

For instance, I might know a man who is a crank on fishing, and I might have a salesman who was also that kind of a nut on the fishing question. Put those two fellows together and you will get some results. *Why send a Sunday-school teacher up to sell a saloon keeper?*

Those things you already know. There is nothing new about them. *But do you sit down and think those things out?*

Is this war situation so tense in your system that you can't think connectedly of your own business? Are you so afraid of conditions that your salesmen are inoculated with the same fear. Those are the things to think about when it comes to salesmanship.

Remember this, and it is not new, but the first minute with a man counts a great deal. In that time one of three things happens: you either attract that man and he is attracted to you, or he is away from you, or he makes up his mind he isn't interested. On the first five minutes depends largely whether or not that salesman is ever going to sell him an automobile or not.

Do More Visiting

We must systematize. We must generate steam not only for ourselves but for the people we employ. We must take them into our confidence, and we must do everything we can to not only do more business but to sell more transportation, because we all know, as has been said many times, that transportation is the neck of the bottle regarding the war. Without proper transportation we can't do the things that we are going to do to Bill.

I don't think that automobile dealers as a rule take as much interest in civic affairs as they should. Possibly that is not true in the small towns, but I think in the cities it is largely true. You must get away from your own business more, because you can't broaden out by sitting at your own desk all the time.

Get over to the desk of someone else that knows a little more than you do and you will learn something. Get the other fellow's side of it. I know dealers in Kansas City who have worked 18

hours a day until they have had to go to California, where they had to stay five years for their health. That is not the way to do.

Don't get your nose so close to your business that you can't see your business.

Get out and find out how other business men are running their business. The motor car business is no different than any other line of business, except that we don't make as much money as we should make on the business we do. Can you imagine a lumber concern doing thirty-five or forty million dollars' worth of business—the amount of business that we do in our territory—and not make any more money out of it than the automobile dealers make in Kansas City out of their business? Not on your life! They don't let anyone come in and trade old lumber to them, and they know how much money they have on hand.

When you have thirty automobiles on hand, I dare you to tell me what they are worth. You may know what they cost you—but you probably won't admit it—but what they are worth, that is a different thing.

I am talking and making these criticisms because I think so much of the business and I think so much of the people in that business. They have been wonderful to me. That group of Kansas City dealers out there, gentlemen, I would stay up all night for thirty nights in a row if I could do them some good regarding their business. That's the reason I am in Cleveland. It is not because I like to run away from my own

Don't Get Your Nose So Close to Your Business That You Can't See Your Business

business, but because I thought that maybe I could come down here and help you folks by saying something to you that will help you to a better organization of your business.

NOW, THERE IS ANOTHER LIBERTY LOAN COMING ON APRIL 6. DON'T GET SCARED. THERE HAVE BEEN TWO ALREADY AND YOU WERE NOT HURT. WE ARE TOO READY TO THINK THAT THIS IS GOING TO SHOOT BUSINESS ALL TO PIECES; BUT IT WON'T. IT WILL IF YOU GET CHILLS DOWN YOUR BACK EVERY TIME YOU READ ABOUT IT. THE GREATEST OPPORTUNITY FOR THE AUTOMOBILE PEOPLE IS TO GET BEHIND THESE THINGS, BECAUSE, IF WE DON'T WIN THIS WAR, WHAT WILL YOUR BUSINESS BE WORTH? IT WON'T BE WORTH THE SNAP OF YOUR FINGERS.

Let the automobile dealers in every city get behind these things the way the automobile manufacturers have gotten behind this war proposition. I think the automobile manufacturers have done

more than any other class of business men in the country to help things at Washington. Let us realize that there is still going to be talk of essentials and non-essentials; but let us not get frightened about it. Look at it in a sensible, business-like way and realize that *the old order has changed*.

Automobile dealers must get behind good roads stronger than they have in the past. If we had permanent highways across this country we would have no neck in the bottle so far as transportation in the United States goes to-day.

We have depended on water and railroads and have overlooked the fact that we could have another method of transportation; and let us do all we can to get the permanent highways. Do you realize that the fuelless days cost the manufacturers and the people of this country three times as much money as it would cost to build three permanent highways across the United States, east, west, north and south.

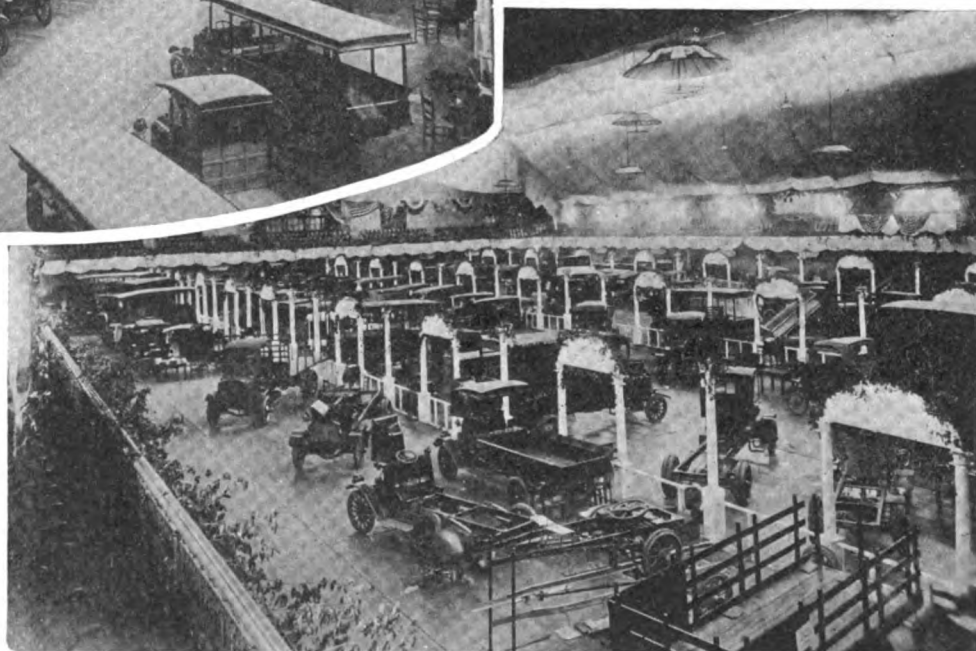
There would have been no coal trouble and no transportation trouble if we had permanent highways across this country in every direction so that people could solve their own local transportation problems by the use of the motor car.

And remember, gentlemen, that there is one road that we are going to help build, and we have got to work day and night to do it, and if it takes every cent that we make to do it, and that is the road that is going to lead from the United States straight into Berlin so that our boys can march over it.



Following the car show in Brooklyn the dealers filled the Armory with trucks and staged an exhibition that did much to stimulate the truck business in this prosperous section of Greater New York

Brooklyn Holds An Exclusively Truck Show



Utica Dealers This Year Hold Their Own Show

The spring sales season is here, and much of its success will be due to the dealer shows that have been held during the winter. The last of the shows are being held. Those described this week were in Utica, Pittsburgh, and St. Joseph. And there is a used car show in St. Louis. Spring shows always bring good show business because the buying weather is at hand.

Utica Sees Good Spring Sales Ahead

UTICA, March 7—Utica is holding its sixth show, and the first show that has been staged by the Utica Motor Dealers' Association itself.

In the past it has been the custom of the dealers to engage a show manager from out of town to put on the affair for them, but this year they decided they could do it themselves, and have come through with a successful exposition.

While there is a show committee for the handling of affairs, all the management has been turned over to W. W. Garabrant, the Franklin dealer, who has gotten along as well as any of the show managers who have been engaged in the past.

The decorating was done by the Utica Decorating & Awning Co., a local company, and the effect pleased the people of Utica.

Good Opening Night

The crowds flocked in Monday night at the opening in larger numbers than on any opening night in past years, and the dealers are gratified with the manner in which the show is progressing.

Utica is a manufacturing city and all of its factories are running at high speed right now. Employees are drawing more money than they ever drew before, and there is reason to expect a good business during the coming year.

While the wholesale territory controlled is small, it nevertheless runs north to the Adirondack Mountains and on the south takes in some cases the city of Binghamton, although Binghamton quite often is made a part of Syracuse territory and sometimes stands alone as a wholesale center.

The second night of the show snow fell and the streets became slushy, and this affected attendance somewhat, but the dealers all report, as is the case in all the other shows in the winter, that the crowd this year seems more interested in what is shown, and is what may be termed a better buying crowd.

The show is held in the state armory. This provides an auditorium floor in

which the spaces of course cannot be large, but it nevertheless makes a very nice show. There is also a basement in which some accessories and quite a few automotive products are shown. There is no room for trucks and some of the larger models are displayed with signs outside in the street during show hours.

Association Growing

One or two of the dealers in town who do not seem to be closely in touch with organization work have not come into the show and are holding private shows in their own salesrooms. The association movement in Utica, however, has taken a new start, and it is expected that within a short time every dealer in town will be an enthusiastic member of the organization, and that in next year's show everybody will be in and boost it.

Following the idea recommended by the National Association of Automobile Show Managers, the Utica dealers held a dealer mass meeting Tuesday noon at the Hotel Utica, at which they were told a story of optimism and urged to go after 1918 business with the assurance that aggressive methods would bring satisfactory results. About 125 dealers were present, the attendance exceeding the anticipations of Manager Garabrant. The address was made by Ray W. Sherman, editor of Motor World.

The dealers in Utica and this section have had some difficulty combating the idea of the public that it should not spend money, but things are moving better now. The streets in Utica are covered in some places with 8 and 10 in. of ice, but warmer weather is due soon, and when the sun comes out it is be-

lieved that spring business will pick up considerably.

Dealers are driving cars away. H. W. Skinner, the Dodge man, has forty-one cars on the D. & C. dock in Detroit. He has rented a new garage with 20,000 ft. of floor, and drives quite a number of cars through from the factory. They come through covered with mud, but when washed up are just as good as new.

He also is selling a lot of trucks, as are the other dealers in this section. Some tractors are being sold, but mostly by the implement people, and the tractor question is one about which there is considerable debate in this part of the country.

The exhibitors and cars at the show follow:

Exhibitors and Cars—A. F. Ferriss, Lexington and Chevrolet; Walter R. Schiller, Detroit Electric; J. M. Weaver Motors, National; Stowell Motor Car Co., Hudson; A. A. Ledermann Co., Pierce-Arrow and Cole; H. W. Skinner Motor Car Co., Packard and Dodge; Overland-Utica Company, Overland and Willys-Knight; I. R. Gardinier Motor Co., Buick; Franklin Motor Car Co., Franklin; T. F. Fitzpatrick, Nash; Coughlin & Scanlon, Chandler and Saxon; William T. Codling & Son, Haynes; A. K. McLuney Auto Co., Studebaker; R. & R. Sales Co., Briscoe and Peerless; Fred Klopfenstein, King; J. & M. Electric Co., Rauch and Lange Electric; A. R. Perkins, Stanley Steamer; Marcus Falling, Hatfield.

Accessories—A. F. Ferriss, Harley-Davidson Motorcycles; Stiefvater Electric Co.; Lockner Bros., Indian Motorcycles; Schiller Electric Garage; Horrocks-Ibbotson Co.; Langdon & Hughes Electric Co.; Utica Rubber Works; M. E. Hooks, Electric Supplies; J. C. Hieber; Lloyds, Wasco Garage Heater; Champion Spark Plug Co.

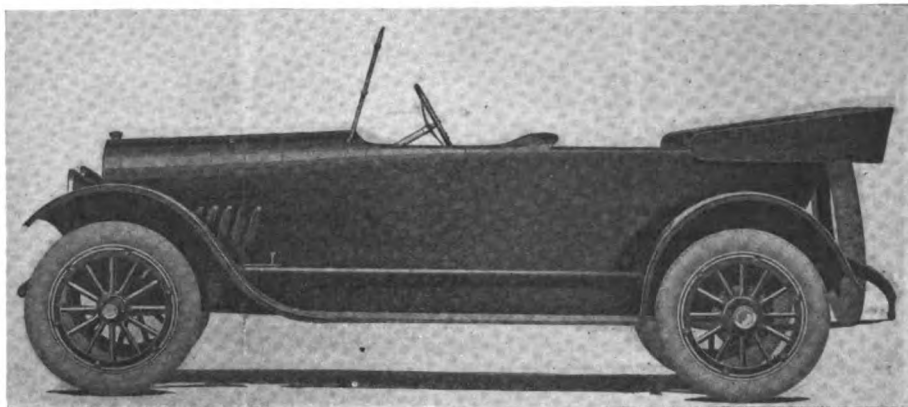
Hatfield Car Shown

The Hatfield car, which is manufactured by the Cortland Cart & Carriage Co., Sidney, N. Y., made its show season debut at Utica. It is a conventional product with a smooth body of pleasing appearance. The five-passenger model sells for \$1,080. The car is equipped with a four-cylinder, 3½ x 4¼ G. B. & S. engine driving through a disk in oil clutch, three-speed gearset and full floating axle. The engine has Connecticut ignition, thermo-siphon cooling and lu-

The Third
LIBERTY LOAN CAMPAIGN
Starts APRIL 6
GET READY!

brication is on the constant-level splash system operated by an oil pump. The wheelbase is 115 in. and tires are 32 x 4. Springs are semi-elliptic both front and rear. The equipment includes Stewart vacuum feed and speedometer, bumper, motor-driven horn, eight-day clock, and one extra rim with tire and tube complete. The electric system is a two-unit Dyneto with a six-volt Willard battery. There is a four-passenger roadster of pleasing lines. Marcus Failing, the dealer, says the output planned for 1918 is 2000.

The Hatfield car, shown at the right, made its appearance at the Utica show



Money Is Plenty in Pittsburgh and Spring Is Promising

Show Brings Out the Buyers and Dealers Are Happy Over the Summer Outlook

PITTSBURGH, March 9—Spread over its customary 46,000 sq. ft. of floor space, Pittsburgh's spring automobile show last week was for passenger cars only. There is talk current among automobile men that a motor truck show is likely to take place soon, probably about April 1.

Contrasted with last year's two shows, this initial display of the year looms up a more important figure in western Pennsylvania automobile life than did either of the 1917 exhibits. Conditions are better.

The Automobile Dealers' Association of Pittsburgh, under the management of J. J. Bell, held the show in Motor Square Garden. Although the building contains 40,000 sq. ft., the demand was such that some dealers not in the association could not be taken care of, though most all of them were anxious to be represented.

Attendance records indicate an in-

creased interest in automobiles in this district. Visitors—thousands of them—came from all over the western end of the state. Eastern Ohio contributed to the throngs that visited the garden day and night. Matinee attendances, however, lagged behind the night crowds to a considerable extent.

Box office records for last year show that almost 30,000 persons attended the fall show, held in October. The admission charged was 50 cents, giving a gross business of about \$15,000.

Marked advances have been made in retail sales all along the line, from the higher priced cars to the ones selling at the lowest figures. More active interest was shown in this show than in the two held last year—active in that more persons viewed the cars with the intention of selecting one for use than in the past, when most of the visitors

consisted of persons who already owned machines and merely wanted to see what the newest ideas in car construction embraced.

Dealers are unanimous in the belief that the publicity benefits derived from the show cannot be estimated in actual money. Aside from their newspaper advertising agents find the show is sowing seeds of interest in cars in persons heretofore not regarded as prospects. It seems that those who early in the week saw the show, and in many cases bought at once, carried home tales of what they had seen and heard, with the result that neighbor John and friend Joe became inspired either with a desire to get into the show and possibly place an order at once, or else to make it a point to visit salesrooms with the same intention.

This is a condition that did not exist to such a large extent last year. As pointed out, previous crowds to a large extent consisted of owners of cars, and there was not the widespread "Dan Smith bought a car at the show and says there are some handsome ones there" propaganda extant to excite John Jones with the feeling that he, too, should see what he could see.

After a diagnosis of the Pittsburgh and surrounding district's possible fan-



Motor Square Garden, Pittsburgh, was tastefully decorated for the annual show, which included the products of 72 different manufacturers

cies and needs this year, local dealers are clearing decks for a most active year in the history of automobile selling here. Difficulty is being experienced by many in filling orders because of railroad conditions. It is hard, according to advices from leading dealers, to get cars from factories to Pittsburgh distribution agents. Hundreds of orders are being filled by driving machines directly from the factory to the purchaser.

Despite the thousands of machines now in use within the boundaries of local agents' territory, expectations are based on substantial conditions. There is nothing unsettled about the Pittsburgh money situation.

Payrolls all over the district are increasing in leaps and bounds. Every month for the last year newspapers have featured the million-dollar-a-day payroll of the district. Figures on the district's wages are based almost entirely on the biggest concerns—the steel mills and munition plants—and do not include the manufactories that are not so well known but which are paying heretofore unheard of salaries. An illustration of what the automobile dealer has a chance to get a whack at may be viewed in the fact that many mines in this section are paying some of their miners more than \$100 a week.

Thousands of persons are getting their first taste of luxury—and the taste is pleasing to them.

It will be several years, leading business men declare, before an adjustment that will puncture these swollen incomes is brought about. All of which tends to make the automobile dealers increase selling facilities and acquire as many salesmen as they can get under present conditions.

The Pittsburgh taste is a thing that cannot be analyzed with any degree of accuracy. Whether the high-priced car or the low-priced car will lead in this spring's sales is a matter that only the close of the year will reveal. No one can safely predict what the result will be. At present there are almost as many cars of a certain higher priced grade in evidence as there are of the less expensive makes. Every make of car that sells for several thousand dollars is a leading contender for public favor and hundreds of them are in use here.

Interest at the show, however, was chiefly centered in the medium priced cars. Those selling from \$1,200 to \$2,000 attracted a majority of prospective and actual purchasers, although the displays of the costlier makes drew a quota well balanced in proportion to exchequer sizes.

There is not in all motordom here a voice decrying the business, or denouncing it as something one should stay out of. All dealers are doing so well and have such fertile fields ahead of them that developments only are being thought of. No one wants to quit or is even thinking of retiring from the game as one of the useless things in business endeavor. Harmony between salesmen and managers is another thing that is making the Pittsburgh automobile business a concrete proposition from the

standpoint of those who are in the industry.

Pittsburgh's automobile show will not have to pay an income tax on the show alone. The association has a lease for a term of years on the building in which the exhibit was held. During the year various kinds of affairs such as balls, bazaars, etc., are held in the garden, which is sub-rented by the dealers' organization. On the year's revenue on Motor Square Garden the income tax will be assessed.

Lack of Street Cars Boosts Automobiles

One of the biggest factors outside in increasing automobile sales in Pittsburgh and nearby territories is the lack of street car service. Business men and employees who have been using the conveyances of the Pittsburgh Railways Co. now turn to the automobile as their only means of getting to work the same day they leave home. Hours have been wasted by thousands of workers and employers in this district waiting for street cars that seldom come.

Of the thousands of machines in this district more than 80 per cent are in business use, the pleasure riding being limited to a very small minority. Professional calls of doctors, business appointments, inspection trips to building sites, surveys of business conditions, and many other purposes, including getting to work, are fulfilled with the use of automobiles.

There is one mill—a none too large one—situated along a street, and the inside of the mill may be seen from the sidewalk. In this mill the writer has seen parked as many as 27 automobiles, ranging from flivver roadsters to leading makes of touring cars. And this

parking space includes only one department of the mill.

There are nearly a dozen downtown parking fields, places on which no buildings have been erected, and in these lots daily are cars in sufficient numbers to pack all available space. These machines are left there by business men and clerks and women shoppers who do not regard their cars as "luxurious pleasures," but business necessities if they are to keep pace with the speed demanded of everyone in this Pittsburgh business game.

"Fine, bright and becoming brighter." This is the estimate of the prospects for the automobile business in Pittsburgh as viewed by Frank D. Saupp, president of the Automobile Dealers' Association and the Hiland Automobile Co., selling Dodge Brothers and Peerless cars.

"Only one thing can hold up thousands of dollars' worth of business in this city, and that is a possible shortage in good cars. There may be many popular priced ones on the market and available, but a car that is a popular priced one does not necessarily mean that it is a much-demanded car. It is likely that used cars will attain a place in automobile life that they have never dreamed of before."

Three accessory firms had space in the show, and their displays drew many inquiring persons. Newer ideas in extra equipment were examined and many orders taken. The space limitations held out many dealers in incidentals who would have been glad to display their wares with the fortunate competitors, who were admittedly fortunate. Several of the leading accessory men who did not succeed in getting space in the garden arranged special displays of their articles in their storerooms.

Trucks, Tractors and Cars Mingle in St. Joseph Show

Territory Proves So Interested Gates Have to Be Opened in Early Morning

ST. JOSEPH, March 9—St. Joseph, Mo., 57 miles from Kansas City, a distributing territory insignificant compared with the Kansas City territory, a local urban population of less than 100,000, held its fifth annual motor show March 6 to 9, less than a month after the Kansas City show.

This fifth annual event of St. Joseph was so far ahead of previous years, in attendance, sales to dealers and ultimate users, and in general significance, that there is scarcely any comparison possible.

The previous shows elsewhere, the publicity in the newspapers and magazines—the appreciation of conditions by the local dealers and business men throughout the district—had apparently worked together to bring the purchasing inclination to a climax at the show.

Some St. Joseph retail dealers were already oversold; some distributors could give dealers and customers no assurances

of immediate deliveries; those who had been fortunate enough to get stocks, were pretty nearly cleaned out during the four days of the show. Sales ranged from 10 to more than 50 for nearly every one of the distributors who could take orders for passenger cars; and the sales of trucks were even larger in some cases. Few new dealers were taken on for passenger cars; many for trucks.

The St. Joseph Motor Car Dealers Association has previous to 1918 held the show of trucks and tractors in a tent near the auditorium where the passenger cars were shown. A dry goods company's lease on the basement of the auditorium expired this year; the motor car dealers immediately leased this basement for five years, and starting this year, holds the truck and tractor exhibition in the same building with the motor car show. The basement has one area 240 by 40 ft., another 60 by 40, which provides

about 30 per cent more space than did the tent, besides improved facilities for display and attention to visitors.

The arena floor of the auditorium, 175 by 75 ft., the stage 50 by 106 ft., these spaces 48 passenger cars were shown by the 17 members of the local association—two more members than belonged a year ago. Some had to be content with space for only one car this year; last year the drawings resulted in the selection of smaller spaces generally, so that space was available for motor car manufacturers outside the association.

Several of the exhibitors used comparatively small proportions of their space for cars, leaving room for tables, chairs, flower stands—real fresh flowers every day—and for the more liberal accommodation of visitors. Six exhibitors showed chassis—those with specially prepared chassis, and lecturers, usually having a crowd of listeners. No dealers' signs were allowed in the passenger car show.

St. Joseph has in past years opened the show at 10, closing at 10.30 in the evening. It had to reform this year. The truck and tractor shows were in the same building with passenger cars; farmers showed up at the doors as early as 8.30, and after frantic attempts to get an official changing of the opening hour, Secretary French took a chance each morning and ordered that the visitors be let in. Then there was another scramble to get salesmen into the show to talk with the guests. Visitors, for the first time, came this year on the morning of the opening day, Wednesday.

Fourteen trucks were shown by ten dealers and four truck attachments by four dealers. All truck attachments and trucks were shown by automobile dealers, except two—the International and the Indiana, the latter agent showing only the truck, the I. H. C. showing also its tractors.

Getting Into Trucks

The St. Joseph territory seems to have waked up very recently to the truck possibilities and necessities. Within the past 90 days several of the contracts for distributing trucks and attachments in this district have been let, and in some cases the contracts are so recent that the distributors have not yet received their first consignments. One man sold two truck attachments from the manufacturer's circular.

"Why did you take on trucks?" one distributor was asked.

"Our local retail passenger car customers and our dealers got to asking us about trucks and we were forced to hustle in a line as quickly as possible," was his reply.

It is worth noting that manufacturers who issue both trucks and passenger cars, are not invariably placing agencies for trucks with their passenger car distributors or dealers; and the distributors are following similar policies. The need of getting trucks to work is too grave to risk distribution, retail or wholesale, except to a firm that is aggressive, and likely to get the product out promptly.

St. Joseph distributors and dealers are

getting immensely interested in the tractor; but they do not seem ready to take hold aggressively. Several tractor distributors attended this show, but were not very successful in placing agencies. One motor car dealer who has recently taken on a truck line, said:

"We are playing fair with our dealers in passenger cars—giving them as large a proportion as we keep for our retail sales. I have a somewhat similar sentiment with reference to tractors—I don't feel like taking on a new thing that I would have to build up business on, and that I would have to risk lying in the hands of some dealers—when the manufacturers might be able to dispose of all of their output through established dealers elsewhere. I'm going to take on a tractor eventually, though."

While the truck show probably held the most intense interest of the farmer contingent of visitors, the tractor show was well patronized—it was intermingled with the trucks. Five companies showed tractors, two of these being companies distributing also automobiles and trucks. There were nine tractors in the show, and also several items of equipment to be operated by them.

Good Accessory Show

The St. Joseph exhibition lacked entirely the character of a general automotive show; there was no example of farm lighting equipment, and no gas engines.

The accessory department, in the lobbies, was by far the most effective St. Joseph has ever arranged. It included several exhibits directed exclusively at the dealer, such as air compressors and machinery for garage work. Business with dealers was light, but publicity to consumers was fine. There were 23 accessory exhibitors. In most cases much care had been taken and expense incurred in preparing the booths, though two or three contented themselves with rest rooms.

St. Joseph is one of the oldest jobbing centers west of the Mississippi; for more than 50 years its salesmen have traveled to the Pacific coast, and its dry goods, shoe and hardware houses sell in many states. The hardware jobbers have been forced into the accessory jobbing trade; and they in the past year have advanced radically in the extent of their business in this line.

In the past two months half a dozen firms have entered the field, and a dozen more have greatly expanded their efforts and territory. St. Joe jobbers get assignments of territory on certain accessories up to thirty counties in the adjoining corners of Missouri, Kansas, Nebraska and Iowa; and this territory is intensively worked on accessories for which no territory is assigned.

The convenience of developing accessory jobbing by an organization already doing other jobbing, and the facilities available in this city, have combined to stimulate St. Joseph to real activity. Three of the automobile distributors also distribute accessories. St. Joseph has half a dozen manufacturers of tires and other accessories, and others making equipment for garages, some of which are doing a national business.

The Timberlake Motor Co., Maxwell distributor, entertained 35 of its territory dealers at a banquet during the show, R. W. Timberlake acting as toastmaster. George E. Swope, supervisor Maxwell Motor Car Corporation, Kansas City, talked on conditions in manufacturing and delivery, and M. J. Williams, district salesmanager, using the Dec. 26 issue of Motor World and the photographs of the pre-show salesmen's meeting at Kansas City, drove home some earnest thoughts on merchandising motor equipment.

The Trachsel Motor Co. was host to 35 Overland dealers and Republic truck dealers—the company distributes both—at a banquet. E. M. Leid, branch manager at Kansas City, gave the message on production and delivery. J. G. Robertson, wholesale manager of the H. A. Dougherty Motor Co., Kansas City, Republic distributors, urged dealers to keep their organizations intact, and working at high efficiency in co-operation, touching on the necessity of other things to help fill the possible deficiency in supplies of motor cars to keep business at normal volume. Trachsel, toastmaster and host, emphasized again the importance of an organization working in closest harmony, maintaining the personal touch between employer and employee, and also with the distributor and factory representatives.

The Commerce Club of St. Joseph, through which most civic activities are cleared, gave a preliminary boost to the show, through its weekly luncheon March 6, when speakers urged the importance of the motor industry in promoting transportation, and urged local business men to attend the show and do their full part in encouraging motor enterprises.

Used-Car Show in St. Louis

ST. LOUIS, March 11—The used-car show opened in the Exhibit Building to-night in the setting made for the annual automobile show. From prospects the show committee believes that interest will promote good attendance during the week. Last week the Censor Committee passed upon all cars then ready for display. Only three or four were rejected. The committee was: Mechanics—W. L. Patterson, Henry Motor Service Co. Bodies, paint, trim and tires—A. R. Van Antwerp, insurance adjuster for the Eastern Automobile Co.

Some of the specifications governing cars exhibited are:

New cars and those used for demonstration only not admitted. Each car must have been used by a bona fide owner.

Every car must be in presentable condition as to paint, top, upholstery, curtains and plating.

All cars must be in fair mechanical condition and brought to show building under own power.

Tires must be cleaned and stand inflated. Tires with blowout patches barred.

Broken windows or celluloid sheets not allowed.

Only passenger cars allowed.

As a special salesman rule to avoid complaints at the Automobile Show, it was decided that no salesman should leave his employers' space to greet a visitor, socially or otherwise.

Drive-Aways

HERE are letters from eight prominent dealers in widely separated sections of the country with regard to passenger car and truck drive-aways. These dealers have all had experience along these lines. They know that drive-aways are necessary, that if others do not organize to carry on this important work they will be shy of cars and trucks when the big rush sets in. Read the letters.—Editor.



Dealer Must Organize

YOUR articles certainly show the dealer the necessity for organizing himself to handle drive-aways.

Personally I have been considering this point for some time, but as yet have not formed a definite schedule nor a definite plan to handle them.

I have just ordered a shipment of trucks to be shipped to a point near Buffalo, and upon their arrival there will arrange to double-deck them; in other words, put one small truck upon a large one and drive it approximately 500 miles to Hartford as soon as road conditions allow. By double-decking, I think trucks can be handled at a cost very nearly equal our present freight rates.

From past experience and figures that I have, I find that the costs are about 20 to 30 per cent higher than express rates. The distance that you are forced to drive cars, of course, enters very largely into a comparison of costs between rail transportation and over the road. Where dealers are within a radius of 500 miles from the factory, I believe their costs will be fully as cheap as freight. But as the distance increases, the cost also increases much faster.

I think it absolutely imperative that every dealer make plans for getting the cars he intends to sell by this method, as I don't believe it possible that the railroad situation will clear up to any extent for a long time to come.

The dealer who doesn't figure this throws a great burden upon the factory and will probably wake up in the spring months and find that he is suffering a

serious loss of business, due to the fact that he is unprepared in the way of making deliveries, and he will also discover that the factory will not extend to him the co-operation that they will to the dealer who has the matter well in hand.

Just as soon as we start moving trucks and cars over the highway I would be glad to furnish you with our expense records.—Russell P. Taber, Inc., R. P. Taber, President, Hartford, Conn.

Question Is Serious

THE question of freight as far as the motor car industry is concerned is a serious one. We must all do everything we can this season and not grumble at inconveniences. We will certainly be greatly inconvenienced at not having freight equipment at our command; the public must bear with us, if the dealers are obliged to drive cars from their factories. The real wise dealer will see that he has stock to deliver when spring comes; therefore, he will be obliged to join the big drive-aways; otherwise he is a doomed man.

Instead of crying for railroad equipment let the dealers of the country co-operate with the Government, let them drive their cars overland; the dealers will then be assisting the nation in one of the most needed essentials, namely, the saving of the transportation. As Ray Sherman says, "Pack up your troubles in your old kit-bag and Drive—Drive—Drive."—Ralph E. Brown, Secretary and Sales Manager, A. W. Haile Motor Co., Buffalo.

Will Drive 75% of Cars

IT may interest you to know that we are making our plans with the idea that as soon as the roads open at least 75 per cent of the cars we sell will have to be brought over the road.

The New York office of the Peerless company is going to arrange a system and have their cars driven by a regular team, and then the dealers who work for the New York office will take the delivery at New York.

The Buick company is working on a proposition of delivering its cars to Buffalo and then having the dealers drive them from Buffalo east.

We have already set a price of \$115 for transportation on Peerless cars, and we are frankly telling prospects that Peerless cars delivered after the first of March will probably be driven over the road. We, of course, explain that a car that has been driven over the road is a much better proposition than one that has come by freight, because it has been worked in and tested out, so that the man who gets it will have less to worry about when he starts to use it.

We have already raised our price on Buicks for spring delivery \$85 for transportation, and without a doubt we will increase this just as soon as we get to where we have made one or two trips and get a line on just where we are at on the Buick proposition.

We had some experience last year driving cars over the road, and as far as I can recollect no one who was offered a car that had been driven over the road made any particular objection to it. Some of the cars we got last year came from

Flint over the road and some just from Buffalo over the road.

The only way for a dealer to play safe on this proposition is to set a standard price which is somewhat higher than the actual cost, because every once in a while there is going to be an extraordinary expense like smashing one up or getting arrested for speeding, and unless the dealer charges more than bare cost when he has good luck he is liable to suffer some loss.

We feel that the whole problem rests in explaining to the people who buy the cars, in the right way, what a dealer is up against, and for that matter what the country in general is up against on transportation, and that the average automobile buyer will accept the situation and be satisfied.

One thing is certain. Practically every dealer and every manufacturer will have to get his cars into the hands of the buying public, so we will all be pretty much on an even basis.—W. A. Rutz, General Manager, The White Motors Co., New Haven.

Must Adjust Ourselves

I HAVE been reading your recent articles on the subject of dealers driving cars away from factories instead of getting them by freight, as in the past, and I believe you have covered the matter pretty thoroughly.

War times bring about unprecedented conditions, and we must adjust ourselves accordingly.

The distributor handling large quantities of cars will have a larger problem to solve than the dealer who sells from ten to one hundred cars.

I believe it is a matter that must be handled by the dealer working in conjunction with his factory organization. Heretofore it has devolved on the manufacturer to attend to the shipping of his product, except in minor cases where purchasers desired to take delivery at the factory; but as the shipping facilities become less and the demand for cars becomes greater, the manufacturer will necessarily have to shift the burden, and the dealer will be required to make his own arrangements for delivery. Some one has said, "We are inventive through incentive." The dealers with the most incentive will get the cars.

There is no doubt that much can be accomplished by co-operation among the dealers in each locality, and by co-operation among factories in a given territory.

Unfortunately, the dealers of the country find themselves in a state of unpreparedness as regards organization, and the time is propitious to get together and push the organization of the National Automobile Dealers Association to a successful issue. This can only be done by a resolve on the part of every dealer in the country to send in his application for membership in this organization. With a large membership, and sufficient money in the treasury, something can be accomplished.

Motor World, the dealers' magazine, can do no better service to the dealers

of the country than to urge a large membership in this dealers' association, and, by co-operation and constructive criticism, help to build an organization that will be in keeping with the dignity of the business and the number of men engaged in it.

Many of the details of the drive-away mentioned in your articles, while no doubt essential, will have to be worked out gradually, but the fact remains that certain facts must be faced, and each dealer and each manufacturer should begin to plan accordingly.—A. E. Malthy, Manager, The Winton Co., Philadelphia.

Driving All Winter

WE have been driving Dodge Brothers cars from Detroit all winter, despite snow, ice, wind and drifts. We must have the cars which the factory is producing, and they must have an outlet for them when they cannot get freight cars, so there has never been with us a question of an alternative.

We expect to continue to drive cars from Detroit just as long as we cannot get them in any other way.—Colt-Stratton Co., J. B. Wyckoff, Advertising Department, New York.

Central Distributing Points Recommended

I HAVE heard considerable speculation on the part of dealers as to their prospects for getting cars for the coming season. The present situation seems to have been the cause of much pessimism on the part of the dealer which no doubt has been communicated, to a certain extent, to the prospect for a new car with the result that the dealer through his thoughtlessness has been more or less responsible for the frequently heard statement on the part of many persons something like this:

"I was going to buy a new car this year but from what I can gather no one is going to get deliveries so I decided to give up the idea and stick to my old car for another season."

It is unfortunate but true that bad news travels much faster than good. Pessimism has an insidious way of crawling in under the skin and it takes a good deal of optimism to counteract it.

It strikes us that it is about time someone started devising ways and means that cars may be delivered even to the remotest sections of the country in spite of present transportation difficulties.

A plan has been advanced to keep the traffic channels open to the distributing centers; to ship not only in carloads but in train loads to certain distributing points leaving the problem of local distribution largely up to the distributing centers themselves.

It should not be a difficult matter to develop a thoroughly efficient plan whereby all the cars that can possibly be manufactured in Detroit, or other cities, may be promptly delivered to prominent distribution points, where these trains could be released and returned to perform their proper functions.

Will Continue Driving

I HAVE carefully read the articles with reference to driving automobiles from the factory, and in this connection would say that we have been doing this extensively for the last year; in fact, I believe that if you will carefully investigate the situation you will find that the Buick company has been driving a big proportion of its output to its branches and distributors during the past year.

We have driven over 300 cars into our own territory, or, rather, our dealers have done so, and we are arranging to continue this method of delivery as long as the scarcity of railroad equipment and the consequent delays of transportation continue.—Vesper Buick Auto Co., F. W. A. Vesper, President, St. Louis.

Distance Not Important

WHILE the writer was East he was in consultation with a number of manufacturers, and it seems that the question of driving cars away from the factory is going to be an important one that must be given consideration even though the distance might have seemed prohibitive in ordinary times.—W. W. Barnett, Denver.

Atlanta may be made a distributing point for the entire south.

It would not be a difficult matter for the dealers to go to Atlanta from any point in the several Southern states and drive their cars to destination.

The problem of overland transportation from the northern factories is greatly simplified after the hilly and mountainous country has been accomplished. In shipping to Atlanta, the hard part of any of the overland trips would have been overcome.

Other cities in similar positions could simply and easily cover large territories. Minneapolis, St. Louis, Kansas City, Chicago, Denver, and other important distributing points could be made distributing centers from which large territories could be handled easily overland, releasing thousands of freight cars that are now being used for this purpose.

Most distributing centers now are the center of a vast net work of good roads. Such an arrangement would greatly stimulate the building of roads and the rapid completion of such roads leading to these centers that might be unfinished. As a factor in the development in our good roads system such an arrangement as this would prove to be of great economic value.—C. D. Pettingill, Sales Manager The G. Norman Baughman Company, Tampa, Fla.

Working Along Right Lines

WE have read your articles with a great deal of interest and believe you are quite correct in your premises.

It gives us pleasure to state that to our belief you are working along the right lines.—The Henley-Kimball Co., A. W. Mutty, Manager, Boston.

This is the first of a
Series of Six Stories.
Watch for the others.

The Man— Who Was a Slacker

By RAY W. SHERMAN

MILLER, who handled the Sennett car in Merrylton, had come in to Callawassa to take another look at the original copy of his contract with Reilly and to buy a few things from Ben Doyno, the supplyman.

"Well," said Reilly, "how are things coming in Merrylton?"

"Oh, not very well," said Miller; "the weather has been bad—people aren't buying very many cars these days and I guess we're going to have a pretty bad summer. Things aren't opening up so very well. I think I see a chance to get in some spare time working for one of the men who has a farm down there, and I guess I'll have to do that this year to piece out my income."

"Going to get a job, are you?" said Reilly. "Well, maybe that's a good idea and, again, maybe it isn't. Do you think you can make more money working for somebody else than you can working for yourself?"

"It looks that way this year," said Miller.

"Don't you think it all depends on how hard you work for yourself?" asked Reilly.

"Maybe it does," said Miller. "I have been working pretty hard all winter, though, and I don't seem to be able to get very far."

"Don't you think that no matter how hard you worked you might work a little harder?" asked Reilly, a trifle sarcastically.

"I don't know," replied Miller. "I have kept pretty long hours out there and somehow or other I don't seem to be able to sell very much."

"What have you got laid out in the way of a spring sales campaign?" asked Reilly.

"Oh, not very much," replied Miller. "I figure on doing a lot of work out in the country—and so on."

"Are you selling that truck that we gave you the agency for a couple of months ago?"

"No, I am not," said Miller. "I haven't got started with that thing yet—and, I don't know—but it seems to me that I am going to have quite a job selling that to the farmers down in my country. You know, they don't use trucks down there;

they've all got horses, and all seem quite sold on the horse idea, and I think it would be a pretty hard job to sell them trucks."

"You know what I think about you?" said Reilly.

"What?" said Miller.

"I think you're a slacker," said Reilly.

"What do you mean?" angrily demanded Miller. "Do you mean to put me in a class with these guys that aren't willing to do anything to help win the war? A slacker is a man who ought to be in the army and isn't! I can't go to war! I've got a big family to support."

"That all may be true," said Reilly. "But this is the time when a man can be a slacker and still not be eligible for military service. This is the one year when all business men have got to do their part in helping win the war, and one way we have all got to help is to go harder after business and to keep money in circulation. I don't think you're doing your bit."

"What do you mean?" demanded Miller.

"I mean just this," said Reilly. "You're going along in the same old rut you've always been in. You aren't doing anything to get more business; you aren't trying to develop any new business; you haven't got a single new idea, and unless somebody comes along and hits you with a club you never will have a new idea!"

"Well"—Miller hesitated and didn't finish.

"You've got to be a different man than you ever were before this summer, Miller. You've got to do business in a different way, and you've got to do a lot more of it. You've got to get some new ideas; you've got to get your mind out of the old rut that it's been working in for years and become a different kind of dealer. If you don't, the chances are when 1919 rolls around

you won't be a dealer. You'll have that job that you're thinking about on somebody's farm down near Merrylton and you'll probably be driving a team. Or, if you aren't driving a team, you'll probably be driving a fine, young motor truck that some other dealer has sold to this farmer that you've gone to work for."

"This 1918 dealer business, Miller, is a pretty serious matter. We all think about it, and then we don't do anything about it. It's a pretty hard proposition for a man who has done business in a certain way for a great many years to change over and do it in an entirely different way. That's what you've got to do this year, or else you are not going to do much of any business. You've got to have new ideas and think new thoughts and do new things and different things."

"You've got to go after sales in an entirely different way and do things you never did before, and you've got to sell trucks and trailers and a lot of things that you never sold before or else you're not going to have the volume of business that you've got to have if you expect to make a profit on which you can live."

"The business man is just like the young fellow who goes into the army and becomes a soldier. All his life this young fellow has worked in an office, or a shop, or on a farm, or some other place, and he has lived a certain routine life. Day in and day out he has done the same thing. He has got up in the morning and gone to work, eaten his lunch at 12 o'clock, come home in the evening, eaten his dinner at 6 o'clock, gone out in the evening, or else gone to bed, and the next

OTHERS in this SERIES

- 2—The Horse Without a Rider
- 3—The Locked Door
- 4—The Street Without a Name
- 5—Ghosts That Are Unemployed
- 6—The Invisible Ink

The Man Who Did His Bit



morning he has got up and done the same thing right over again, day after day.

"But now what happens? Along comes this war and the young man has got to do different things just the same as you have got to do different things. Something has got to take him out of the rut in which he has always lived, so the government says, 'Here, young fellow, we've got to have an army, and I need you and you've got to go to war'; and he says, 'What do you mean, me go to war?' and the government says, 'Sure, you've got to go to war.' And he says, 'Why, I never went to war—I have always worked in an office'; and the government says, 'Well, that doesn't cut any ice.

Come on, I'll show you how to go to war.'

"So a fine-looking army officer takes this young man and brings him over to an army cantonment; takes his old clothes away from him and gives him a uniform; tells him what time he is going to get up in the morning; what he's going to do after he gets up; what time he's going to eat breakfast; what he's going to do all the forenoon; what he's going to eat for dinner, and when he's going to eat it; what time he's going to be in bed, and how long he's going to sleep; how he's going to stand when he stands up; how he's going to sit when he sits down, and what he's going to say and how he's going to say it, and there isn't a thing

left for him to do except take these new 1918 ideas and use them. If he doesn't do that he's a slacker.

"That's just the same thing that's got to happen to the progressive dealer. The only difference is that instead of there being the Government to take him out of the old rut and put him into new channels he has got to do this job for himself, and his success is to be determined by his own ability to take himself out of the rut and make himself into a new man.

"Now, the question is: What are you going to do about it? You have always come into the spring season and sort of waited for business to come to you.

(Continued on page 49)

The Stanley Steamer in New Form

Fitted with a Body of Modern Design of Either Four or Seven Passenger Type—Piping System Greatly Simplified

A NUMBER of detail changes have been made in the Stanley steam car for this year which have made it a considerably improved product. Probably the most radical changes are in the body and in the piping system. The body has been brought thoroughly up to date and is now an example of the straight line type, designed by George J. Mercer, who is well known as a contributor to *Motor World*. The cowl has been raised, as has the hood, making the radiator higher. The V shape at the front of the radiator has been made sharper so that it now has what is known as the Mercedes line. The remaining part of the car is of the straight sided, flat, beveled edge type with square corners on the doors, full crowned fenders and a cowl board for gages, speedometer, etc. The windshield is sloping.

Only Two Models Offered

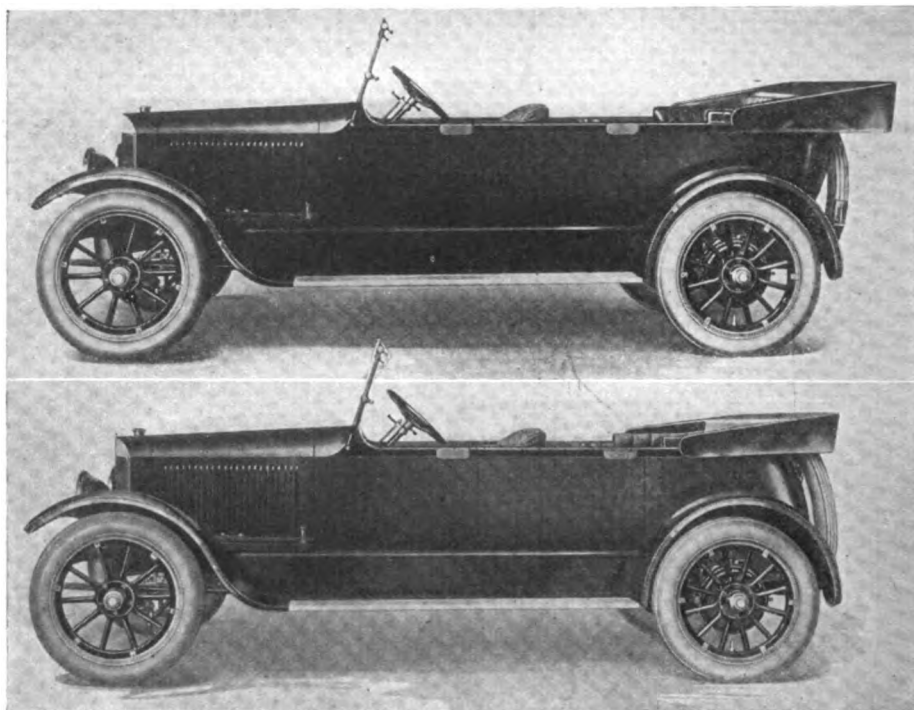
Instead of making the car in three-, five- and seven-passenger styles as previously, only two bodies are offered now, the seven-passenger and a four-passenger. There is no roadster model and no five-passenger model. The four-passenger model has both front and rear doors and where the back has been moved up to make it close-coupled, a sweep has been given the back, giving a modified turtle back.

From the owner's standpoint probably the biggest change is in the electric device for heating and igniting the pilot vaporizer. This operation was formerly accomplished by means of a Prest-O-Lite tank. This has been done away with, however, and current is now furnished by a Willard storage battery to a resistance coil controlled by a button. The arrangement is such that the current cuts itself out after its mission has been accomplished. With this modification of the burner it is now possible to use kerosene in the pilot. If desired, however, gasoline can also be used or a mixture of the two fuels. Pilot burner and vaporizer are now a unit and can be easily removed at any time without disturbing the burner.

Piping System Redesigned

From an engineering standpoint probably the cleaning up of the chassis is the most noticeable improvement in this year's Stanley car. By redesigning the piping system it has been possible to reduce the total length of piping by about 60 per cent. The piping itself is now also standardized as to size and fitting and the units themselves have been made much more accessible.

In the fuel line the vaporizer coil has been omitted and the so-called master



Seven-passenger and four-passenger Stanley cars

valve as well. The fuel line is controlled by the main burner valve on the instrument board, which not only does the work of the fuel valve, but also incorporates the work of the master valve. The pressure tanks on the fuel system have been moved forward and are now in front of the pump box. This cuts out a complete return piping system to these tanks and shortens the connection very considerably.

In the water system the piping has been standardized as to size and is now 7/16 in. throughout. The front and rear pumps are now interchangeable and the system has been improved so that any sound or water hammer is impossible regardless of the car speed. The pumps are connected so that they now work together instead of independently as before, and this has simplified the water line considerably. The three-tube water indicator formerly employed has been replaced by one of new design of the float type, which always indicates the correct level of the water whether the car is under steam or not.

The piping diagram herewith shows the new system completely. It should be pointed out that this is in diagrammatic form and that on the car the units are somewhat differently located than in the illustration. For instance, the water tank is right beside the power pump, instead of below, as indicated in the diagram. The rear by-pass valve has been

eliminated, and both the rear and front water pumps are controlled automatically, so the driver no longer needs to use a rear by-pass valve as heretofore.

Very few changes have been made in the steam system. One important change, however, is in the super-heater, which is now arranged in a series of parallel loops instead of a coil, as heretofore, and the steam on leaving the super-heater goes direct to the engine instead of passing up through the boiler. With this arrangement a greatly improved job is obtained, from an accessibility standpoint. The whole super-heating system can be taken out by removing three bolts, and without disturbing the burner. The super-heating tubes, furthermore, are made of an improved heat-resisting metal that is practically unaffected by the continued high temperature under which they operate.

Fuel System Rearranged

The fuel system has been greatly simplified by moving the pressure tank up to the pump. This places the units of this system in the most direct arrangement and the air pump line to the pressure tank is only 18 in. long instead of being the entire length of the chassis. The fuel automatic is under the floor in the rear, so that the return line from the automatic can be very short. The fuel pump is practically unchanged, and the fuel flows straight to the burner,

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Ohio Has No Lien Law

Editor Motor World: In your issue of Feb. 13 you published on pages 16 and 17 Lien Laws for all states. We are particularly interested in these laws for the State of Ohio, and find that they are not given in this issue. If you have any valuable information that will be beneficial to us covering the State of Ohio the writer would appreciate your sending it.—Studebaker Corp. of America, Toledo, Ohio.

Answer—The reason that Ohio was not included in the compilation of lien laws recently published was because there apparently is no statutory garagemen's lien law in Ohio. A search through the general code of Ohio shows that there apparently is no statutory law giving a lien even to persons for repairing, storing or improving personal property. There is no reason why Ohio should not have a special garagemen's lien law like Illinois, New York and two other states if the garagemen get together and demand it.

The Lien Is Lost

Editor Motor World: Can a dealer in the State of Utah hold a car for a repair bill after the car is out of his possession? Would also appreciate some data on the lien law of this state.—Midland Auto Co., Green River, Utah. (Franz Bros., Props.).

Answer—While the Utah lien law does not specifically provide that a person has a lien only while personal property remains in his possession, it is, nevertheless, a fact that a lien is lost when the property is given up by the person repairing, improving or storing it because this statute is only a codification of the old law and under the common law a lien was lost as soon as possession was surrendered. The Utah lien law, which is one of the Compiled Laws of Utah, provides as follows:

"Every warehouseman or other person who shall safely keep or store any personal property at the request of the owner or person lawfully in possession thereof shall in like manner have a lien upon all such property for his reasonable charges for the storage or keeping thereof and for all reasonable and proper advances made thereon by him in accordance with the usage and custom of warehousemen.

"Any mechanic or other person who shall make, alter, repair or bestow labor

upon any article of personal property at the request of the owner of such property shall in like manner have a lien upon said article for his reasonable charges for the labor performed and used in making such alteration, repair or improvement."

Liens may be foreclosed after 30 days default in payment of debt like a mortgage.

After Five Years

An interesting case concerning a dealer's right to the return of a deposit made upon the signing of an agency agreement has just been affirmed by the Court of Appeals, the highest court in New York.

Over five years ago suit was instituted by a dealer to recover \$490 deposit which he had turned over to a distributor upon the signing of an agency agreement.

The contract provided: "In the event that the company shall fail to deliver any one or more automobiles in accordance with the foregoing schedule, it may at its option return the agent's deposit on such car or cars or deliver such car or cars as soon thereafter as it reasonably can; it being distinctly understood and agreed, however, that no liability whatsoever shall attach to or be asserted against the company in case of its failure to deliver any of said automobiles."

The distributor contended that there had been a breach of contract on the part of the dealer because he had not purchased the required number of cars.

The dealer contended that there could be no breach of the contract because it was void, as under it the distributor was under no obligation to furnish cars and no penalty could be imposed upon it if he refused to do so.

This case was first tried in the Municipal Court of New York City, which found in favor of the dealer. The distributor then appealed to the Appellate Term in New York County, which unanimously affirmed the judgment of the Municipal Court. The distributor then appealed to the Appellate Division, which again affirmed the judgment of the Municipal Court, whereupon the distributor appealed to the Court of Appeals, which in turn unanimously affirmed the original decision.

In all sixteen judges passed upon this case, fourteen agreeing that the contract was void and two deciding that the dealer

was not entitled to the return of his deposit. This case was in litigation over five years.—Goodyear vs. Koehler, S. G. Company, 220 New York, page 749.

Suit May Be Started Now

Editor Motor World: What is the Iowa law with regard to collecting charges on automobile repairs and accessories? We have an account against a man for nearly \$50. He is married, the postmaster and a harness maker, and is subject to draft No. 1A. In case a lien can be put on the car in Iowa, can such lien be applied to him in the event that he is drafted? If we have any right to attach his car, how should we proceed to secure the car which he keeps on his premises?—Iowa.

Of course under this law the lien is lost if possession of the car is given up by the garageman.

The Soldiers and Sailors Civil Rights Bill has been reported favorably both in the House and in the Senate. Within a week or so this bill will go before Congress, and it seems likely that it will be adopted and become effective as a law.

In its original state the bill provided that:

"Mortgages could not be foreclosed on homes that soldiers and sailors are buying on the instalment plan if the instalment payments become due while they are away.

"Mortgages on businesses or stock in trade belonging to soldiers and sailors cannot be foreclosed.

"Property belonging to soldiers and sailors cannot be sold for non-payment of taxes.

"Insurance policies cannot be canceled because of deferred payments.

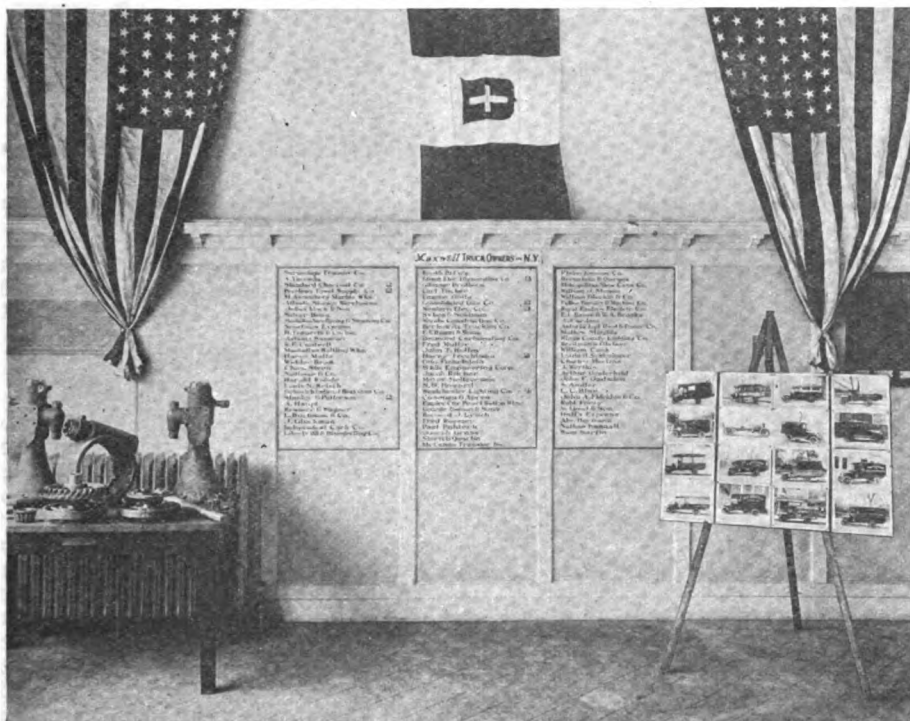
"Landlords cannot dispossess the families of soldiers and sailors if they are unable to pay the rent while the soldier and sailor is away in the service. The seizure of homes of soldiers and sailors to satisfy judgments entered before their departure is prevented.

"The statute of limitations is suspended as regards suits by soldiers and sailors no matter how long they may be away in the service of the country.

"Creditors will not be able to obtain judgment against soldiers and sailors because of their absence from home."

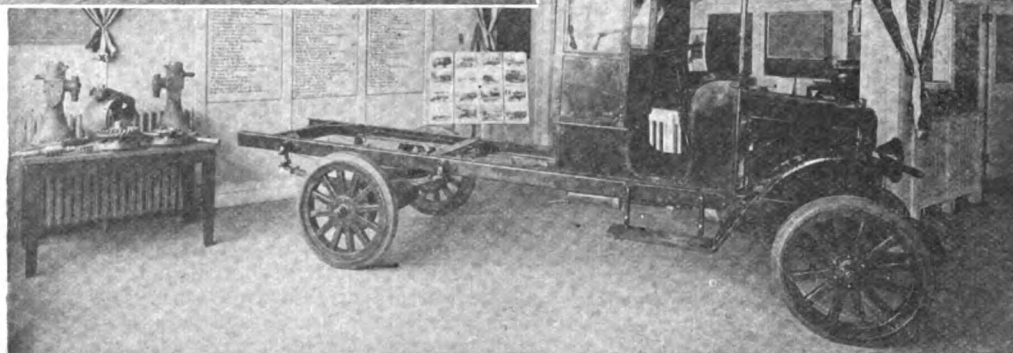
In your case there seems to be no reason why you cannot start suit now if you desire, and if judgment is entered before the new bill becomes a law you may be able to collect.

Displaying Commercial Cars to Best Advantage



*Maxwell Exhibits
Passenger Cars and
Motor Trucks in One
Showroom*

Maxwell devotes part of its salesroom to trucks. The room is decorated with flags and in general is made attractive. Note the bulletin board giving list of names of truck users and at the right a standard truck chassis



TRUCKS and commercial cars can be handled consistently and effectively in passenger car showrooms. Among the first to adopt this practice in New York is the Maxwell Motor Co., which has realized that now as never before the eyes of the world are turned upon trucks. Where once the truck was secondary, now it is essential and paramount. There is no conflict between the sale of trucks and of passenger cars and efficient economy dictates the handling of both in the same salesroom.

The wisdom of this course of action has been demonstrated. Some three months ago Harry De Baer, New York manager, combined these two branches of the business.

In the Maxwell salesroom there has been set apart a portion of the main floor space for the exclusive sale of trucks. This is decorated with the flags of America and her allies. A standard truck chassis is shown, together with a table of parts and accessories, and a complete set of photographs showing various types of truck bodies. By way of encouragement a list of New York users is prominently displayed and al-

ready occupies a good section of the wall space.

In the merchandising of trucks and passenger cars there is no friction, but a healthy rivalry. A separate staff of salesmen is employed and there is always at least one truck salesman on the floor. De Baer says that not only has the sale of the trucks increased greatly under the present conditions but that in many instances the truck exhibit has been the means of selling passenger cars, and vice versa.

Peoria to Aid Red Cross, Too

PEORIA, ILL., March 7—The Peoria Automobile and Accessories Dealers' Association has incorporated with the secretary of state for the purpose of conducting their annual exhibition to be held at the Coliseum March 13, 14, 15 and 16. The show is staged under their auspices and consequently they have incorporated for that purpose. H. B. Pinkerton is president of the organization. W. E. Johnston, vice-president, R. F. Graham, treasurer, and Robert Fitch, secretary. The directors are as follows: Herman

Moody, Edw. Coyner, W. W. Ingram, C. A. Porter, Edward Kinsey and Charles Turner. Walter O. Ireland of Peoria, who staged the shows of the past two years, has been retained as manager by the local organization. The first day's receipts will be donated to the Red Cross Society.

To Train Tractor Operators

LANSING, MICH., March 7—A school which will train men for the 1918 crop drive by teaching them the operation of farm tractors will be conducted here by the Michigan Agricultural College during the two weeks from March 4 to 16, with Prof. H. H. Musselman of the M. A. C. in charge. This training camp is for men who expect to use these tractors, or would like to fit themselves for such service on Michigan farms in 1918. Candidates for this course will be required to report at the college on March 4 and will enroll in the department of farm mechanics for the special tractor just as if they were regular students. A battery of a dozen engines, both steam and gas, and of every make will be used in the work.

Repairshop Shortcuts

From The Motor World Roadman

NO. 1583—FACING TUNGSTEN VALVES

The extreme hardness of tungsten steel valves makes the operation of facing difficult unless a lathe with a tool post grinder is at hand. This may readily be done, however, by means of an 8-in. file of very fine cut held by a clamp in the lathe tool post. Holder and file are set at the proper angle and the cross feed is turned against the valve face. This device will smooth and polish the valve quickly and at small expense.—C. E. Bradish, 106 Queensbury Street, Boston.

NO. 1584—CLUTCH SPRING TOOL

A convenient tool for use in placing or removing the spring in a Dort clutch is made of a piece of $\frac{3}{4}$ in. square steel stock about 24 in. long. A cut 7 in. long is made on the center line at one end, and the two parts are separated to form a yoke 5 in. long and $1\frac{1}{2}$ in. wide. A loose hook is attached to the rivet or bolt holding the ends of the yoke together. The solid end is forged round to form a handle, and is bent nearly to a right angle with the yoke. In use, the hook engages the hole in the hub flange, and the crankshaft extends through the yoke which rests on the thrust bearing washers. Pressure on the tool compresses the spring and permits the insertion or removal of the pin.—C. C. Spreen, Flint.

NO. 1585—PLACING FORD PISTON RINGS

I have noticed that few repairmen know how to place Ford piston rings properly. The fact is that the Ford piston ring is tapered, and a notch will be found filed on the inside of the narrow edge of the ring. In placing the bottom ring this notch should be upward, and the top ring should be placed with the notch downward. The middle ring should be the same as the bottom. In this manner it is clearly seen that the two lower rings prevent oil from entering the compression space, and the top one gives better compression than if it were turned the other way up.—Carl Lightfoot, Grafton, W. Va.

NO. 1586—AXLE ASSEMBLING RACKS

Special racks to hold front and rear axles and differentials and their parts will be found to save much time and trouble in assembling and making repairs. They are mounted on wooden frames or benches provided with compartments and bins for every part, screw,

\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

bolt or what not belonging to the job. The frames for the rear axle and the differential are of thin steel strap bent to shape, while a vise is used to support the front axle. The drive shaft rack has a board at one end in which is a square hole to hold the universal joint so that the pinion lock can be tightened or loosened.—Paul A. Kent, Wilson & Ohm, Waukegan, Ill.

NO. 1587—BALL BEARING CONE PUNCH

The front wheel bearing cone on the Ford is a drive fit on the spindle, and unless driven on straight is liable to wedge and break. This may be driven on readily by means of a special steel punch drilled out to fit over the spindle and pressed flat against the bearing cone. The bearing may then be drawn in place by means of the spindle nut.—W. V. Romine, Vollmer Bros., Colorado Springs.

NO. 1588—SPARK PLUG RACK

A receptacle for the safe keeping of spark plugs, and to prevent the breaking of the porcelain, is easily made in the shape of a drawer without a front attached to the under side of the workbench. A $\frac{3}{4}$ -in. board forms the base. In this are bored 15/16-in. holes 3 in. apart to hold the plugs. All the plugs are thus always visible at a glance, and any one can be selected instantly

without unnecessary handling. The device saves both time and plugs and adds to the neatness of the shop.—C. C. Spreen, Flint.

NO. 1589—LIGHT ECONOMIZER

A simple arrangement for turning on and off the light in a stock or oil room or closet by the opening of the door consists in attaching the chain of the lamp socket to a coil spring and a cord fastened to the door. On entering the room the door, opening outward, pulls the cord and switches on the light. While the door is closed the light remains on, but is extinguished by the second pull of the cord as the door is opened to leave the room. The spring protects the chain from breakage and insures an even and gentle pull on the switch. The door should, of course, be self closing. The light is always on when needed and off while the room is unoccupied.—Fred. A. Kaiser, Kaiser Motor Car Co., Columbus.

NO. 1590—PENCIL OR PEN RACK

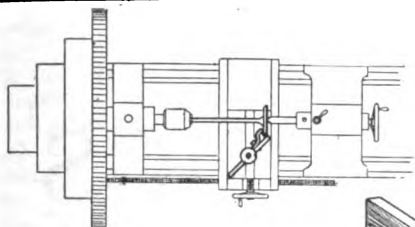
A piece of valve spring fastened against a wall or the upright side of a desk or bench with a pair of wood screws makes a serviceable rack or holder for pens and pencils. The spring should be held at a tension sufficient to separate the coils about $\frac{1}{4}$ in. The device costs nothing, takes a moment or two to put up and saves many minutes and pencils.—C. C. Spreen, Flint.

NO. 1591—FOOT BRAKE CHOCK

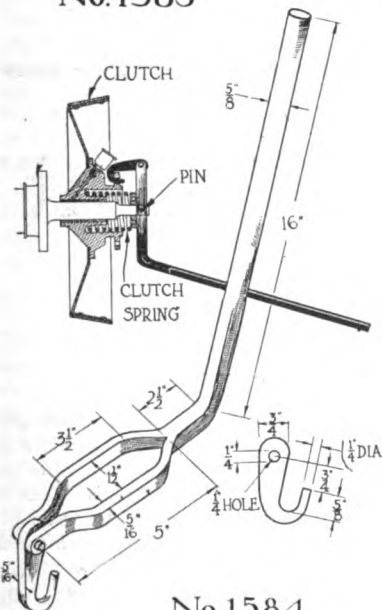
In adjusting the brake mechanism of a car it is often necessary for one man to hold the foot brake in a certain position while another does the work. A device for holding the brake rod at any degree of tension, and thus saving one man's time, consists of a piece of board of suitable length to reach from the car seat to the brake pedal, with one end cut in a series of notches to hold the pedal depressed as required. A 1-in. board 6 in. in length and about 2 ft. long will answer the purpose.—C. B. Smith, Hollywood, Cal.

TO TEMPER TOOLS FOR NICKEL STEEL

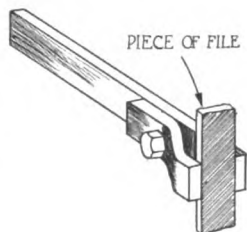
Difficulty is often experienced in lathe work on nickel steel stock through the failure of the tool to retain its cutting edge. To overcome this I heat the tool nearly to white heat and plunge it into kerosene oil. I have found that this overcomes the difficulty.—C. E. Bradish, 106 Queensbury Street, Boston.



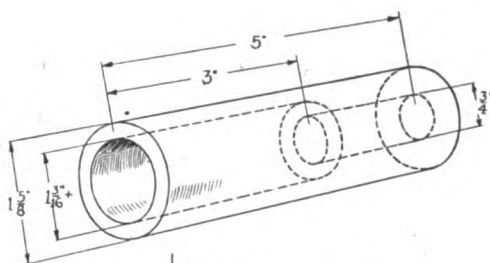
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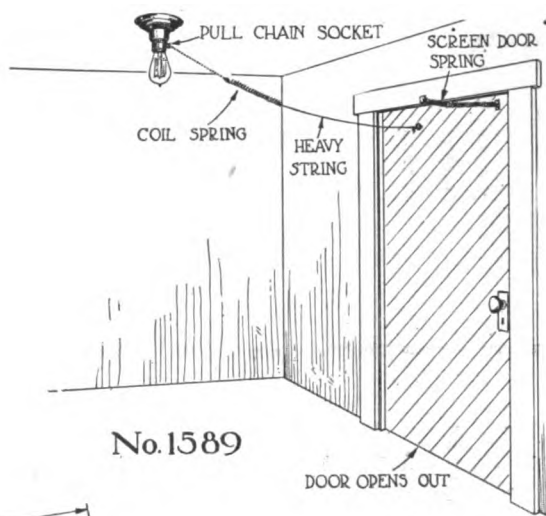
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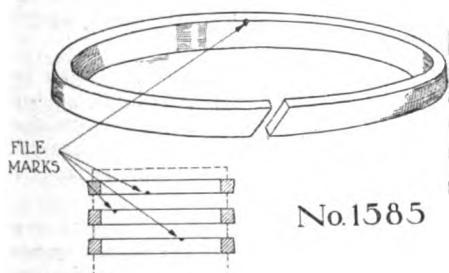


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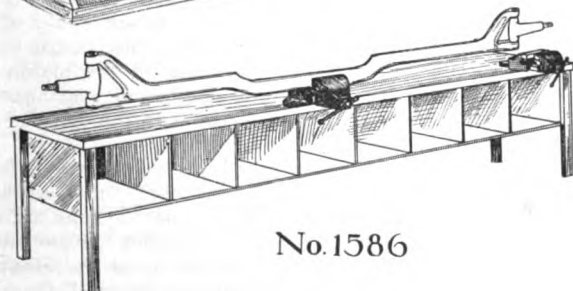
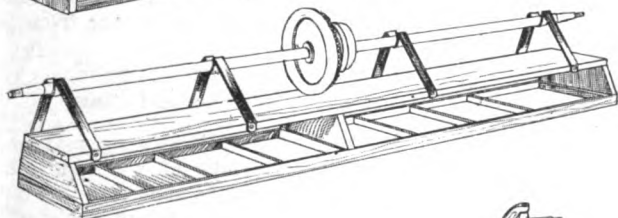
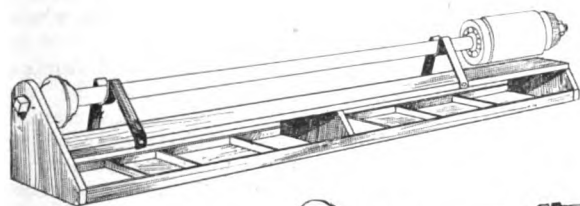


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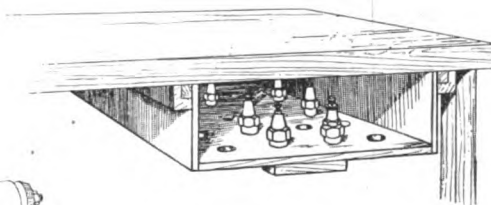
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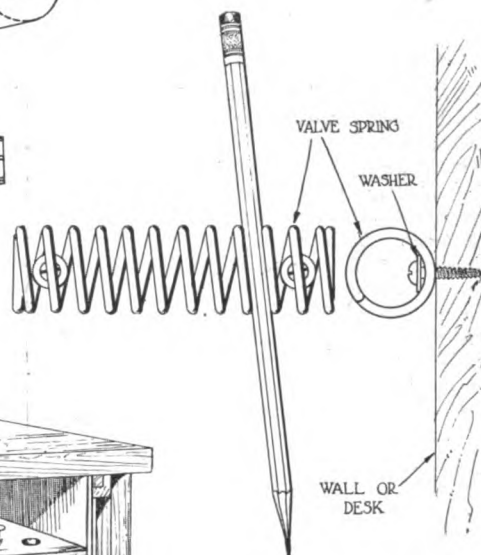
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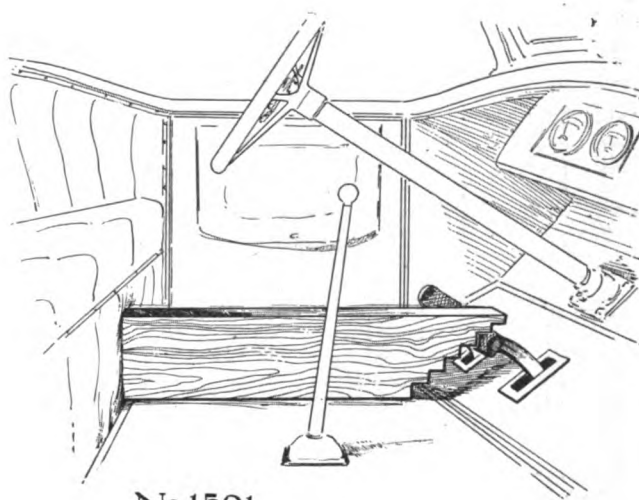
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BETTER MECHANICS

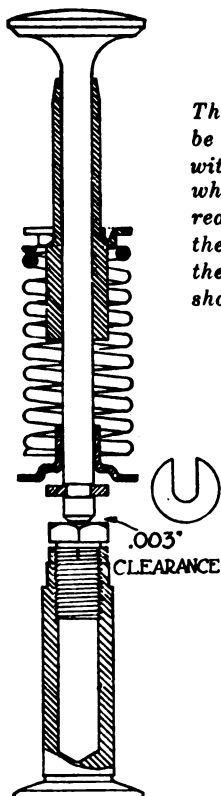
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Maintenance and Adjustment of Paige Cars

1—Crankshaft and Bearings

UNLESS a motor stand is available, the main bearings can best be refitted after the motor is removed and turned over on a box about 20 in. high.

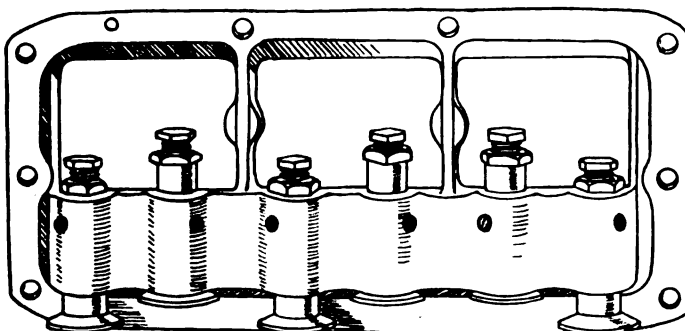
In refitting the main bearings, great care must be taken in preserving the alignment. This work requires considerable practice, the usual method being to cover the bearings on the crankshaft with a light coating of Prussian blue or lamp black. The crankshaft is replaced and the bearing caps tightened down. The shaft may then be turned and the coloring will mark the high points on



The valve tappets may be removed all together, with their bracket, and when worn may be readily replaced. At the left is a detail of the valve and tappet showing point of adjustment

the bushing. These should be scraped down with a hand scraper until the three bearings fall in line and show a perfect bearing surface.

The main bearings are die-cast alloy of copper, tin and antimony and are separated by shims of three thicknesses, .005, .007 and .004 in. If the bearings are looser than .004 or .005, there will be a decided knock or rather a dull thud when the engine is being accelerated with



Part 1

- 1—Crankshaft and Bearings
- 2—Pistons and Rings
- 3—Valve Mechanism
- 4—Timing Gears
- 5—Lubrication
- 6—Removal of Engine

Part 2—Next Week

- 7—Electrical System
- 8—Carburetion
- 9—Cooling System
- 10—Clutch Adjustment
- 11—Gearbox
- 12—Axle Adjustments

the spark fully advanced. End play in the crankshaft will also produce a slight knock, noticeable when the engine is running idle and being accelerated under loads, and may be distinctly felt by placing the hand against the clutch pedal.

One way of differentiating between a loose connecting-rod and piston slap is that the former will be heard twice every revolution and the latter but once in two revolutions, or, in other words, each time the explosion occurs.

End play in the crankshaft may be adjusted by removing the shims located between the rear side of the crankshaft gear and the shoulder on the crankshaft where it projects through the front main bearing.

To do this it is necessary to remove the radiator; next place a jack under the oil pan of the motor to hold the weight of the front end of the engine when the gear cover is removed.

After the gear cover and fan pulley have been taken off, loosen the ratchet nut on the front end of the crankshaft and pull the crankshaft gear off about $\frac{1}{4}$ in. This will make the shims accessible and enough of them may be removed to reduce the clearance in the front bearing to about .005 in.

2—Pistons and Rings

IN case the cylinders or pistons are damaged by lack of water or oil, the scored spots may be smoothed by lapping. To do this, file the rough spots off the pistons and remove the piston rings. Next cover the sides of the piston with a fine grinding compound (carborundum is best) and insert it in the cylinder from the top.

Then proceed to lap the cylinder by moving the piston the full length and turning it from time to time in order to grind the cylinder bore evenly. Great care must be used to remove all of the grinding compound from the

cylinder walls and to guard against any of it getting into the crankshaft bearings when the job is finished.

After the cylinder bore is smoothed it will be necessary to measure the bore and order new pistons to fit. The standard size of the cylinder bore (small six) is 3.125 and of the pistons is 3.122. This provides .003 clearance.

The pistons all have their sizes stamped on the top end, and to get the size of the cylinder bore remove one of the other pistons and insert it in a lapped cylinder, then measure the clearance with a feeler gage and order accordingly.

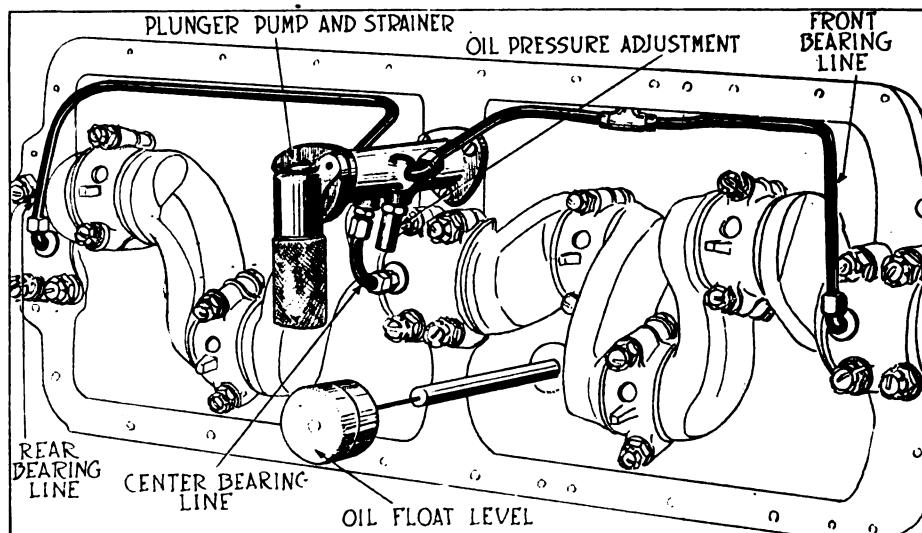
The piston rings should be a free fit in the groove, and when fitted to the cylinders have .003 clearance between the ends of the ring. After these have been in use a short time and the piston ring develops a polished bearing surface against the cylinder walls, this gap will become wider; .02 is not excessive, as there will be very little additional wear.

3—Valve Mechanism

END thrust on the camshaft is taken care of by an annular ball bearing, which also carries the rear end of the shaft. This bearing is located in a retainer or sleeve, which is held in position by a locating screw extending through the cylinder casting, and the sleeve has a pressed steel cap under its rear end. This nut is held in position by a wire lock or retainer. The removal of this cap makes the thrust bearing readily accessible.

The clearance between the valve tappets and valve stems should be .003 in. when the motor is warm. It is good practice to start with No. 1 cylinder after the crankshaft has been turned until the piston is on the compression stroke. One-third turn will bring No. 5 on its compression stroke, and then these valves should be adjusted. Then proceed with No. 3, 6, 2 and 4.

After the valves have been ground, the work may be tested by making several straight pencil lines across the valve seats about $\frac{1}{2}$ in. apart, then dry the seat of the valve, insert it and turn it a half a turn with slight pressure. If



After the base has been drained and removed, the oil pump, leads, strainer and bearings are exposed and accessible

it wipes out all the marks the seat is perfect, but a low spot will be noticed by the lines remaining untouched.

The valves are all numbered and great care should be used so that they are not interchanged, because the intake and exhaust valves are made of different alloys.

The tappets are set in guides, which in turn are a pressed fit in the cylinder block. These guides are held in place by clamps on the staybolts and crankcase, which also holds the block in place. Care should be taken in tightening them to see that the clamps do not bind on the stud allowing the block to vibrate. Washers can be put under the clamp in case it is necessary to shift them up.

The front, center and rear camshaft bearings are of a composition similar to that used on the crankshaft, and are a drive fit in the cylinder casting and held in their positions by dowel pins which extend through the cylinder casting into the bearings. These bearings are reamed in place to insure their correct alignment, and in case it ever becomes necessary to replace them, reamers for this work may be secured from the Paige company.

4—Timing Gears

THE camshaft is driven by helical reduction gears, the crankshaft gear being a special grade of steel and the gear of the camshaft being built up of silk fabric held between two steel plates. The wearing surface of the gear is not carried on these steel plates but entirely on the fabric.

The camshaft gear is mounted on a flange on the front end of the camshaft, and is held in position by three cap screws. To remove the camshaft gear it is first necessary to remove the gear cover, then loosen the retainers under the cap screws and remove the screws which attach the gear to the shaft.

There are two $\frac{3}{8}$ -in. threader holes for the gear puller. Care should be taken in removing the gear not to crack the steel flange on either of the gears.

To reassemble the gear first turn the crankshaft until the timing indicator or

pointer is even with the line on the rim of the flywheel which is marked In.-Op.-1 and 6.

Then turn the camshaft to the left until the intake valve on either No. 1 or 6 cylinders is about to open.

Then insert the camshaft gear so that the marked tooth of this gear is in a line with the marked tooth of the crankshaft gear.

The camshaft gear may then be securely fastened in this position and the wire retainer on the cap screws securely locked.

Great care should be used so that there is no dirt or other foreign substance between the flange of the camshaft and the seat of the camshaft gear because this will cause the gears to run in an eccentric manner and will also make them very noisy.

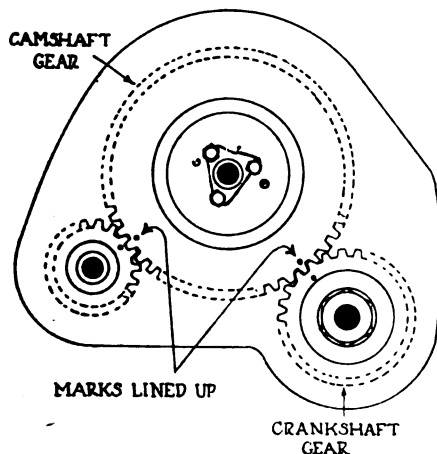
End play of the camshaft is prevented by a spring and plunger in the front end of this shaft. This adjustment is positive.

5—Lubrication

THE oiling system on the Model 6-46 motor is known as a constant level splash and pressure system. The oil is carried in a reservoir at the bottom of the crankcase and is drawn through a fine mesh screen by the oil pump, which is of the plunger type, operated off the crankshaft. It forces the oil through copper tubes in the three main bearings. The front and center bearings have an outlet which furnishes the oil to the gears in front and to the troughs into which the connecting-rods dip. The troughs have holes drilled to keep the level of the oil, the surplus being returned to the reservoir.

There is a pipe line running from the pump to the gearcase with a screw adjustment to regulate the oil pressure by turning either in or out. There is a pipe line from the pump running to an oil gage on the dash which gives the pressure at all times.

The camshaft and cylinder walls get the oil by the splash from the connecting-rods. The bottom rings of the pis-



Before removing the timing gears, the marks on the camshaft and the crankshaft should be lined up and replaced in the same positions. This brings the timing right

tons wash the surplus oil back into the crankcase.

The overflow from the front bearing falls into a small compartment immediately under the crankshaft gear and is picked up by this gear and carried to the other gears and the bearings of the water pump shaft. A small oil throw washer on the pump shaft prevents any surplus oil from being carried out on the shaft or the hub of the fan drive pulley.

Any overflow from the gear compartment is carried immediately to the splash pan, where it provides for the splash lubrication of the connecting-rod bearings and the cylinder walls. The dippers on the connecting-rods should go $\frac{1}{8}$ in. beneath the surface of the oil.

The upward stroke of the oil pump plunger draws the oil through the lower ball check into the pump body and the downward stroke discharges it through the upper ball check into the body of the plunger, which is hollow and which has outlets on either side. These allow the oil to flow from the plunger into the bypass in the oil pump body and then into the lines running to the three main crankshaft bearings. The next upward stroke of the oil pump plunger forces the oil through these lines to the main bearing, and will raise the pressure in all these lines from 2 to 8 lbs., according to the speed of the motor.

The oil feed to the center camshaft bearing is arranged by the passage of the oil through the pump plunger and through a drilled hole in the side of the oil pump plunger plug. This plug, which bears against the eccentric on the camshaft, is of hardened steel and is held in this position in the oil pump plunger by means of a $\frac{1}{8}$ -in. straight pin.

The oil pressure regulator is located directly on the body of the oil pump and connects to the bypass. It consists of a hollow sleeve screwed into the body of the pump, which has a fine $\frac{5}{16}$ -in. ball check held by a short coiled spring, the tension on which determines the oil pressure. The tension is adjusted by the nut at the outer end of the body in the regulator. The tension and the pressure may be increased by turning the nut to the right. The nut should not be given more than one turn at a time in either direction, as it is very sensitive.

A loose main bearing will allow more oil to pass through it, consequently the pressure registered by the oil gage will be reduced. This will come about gradually, and it is not advisable to attempt to readjust the oil pressure without first noting the condition of the main crankshaft bearings and the center camshaft bearing.

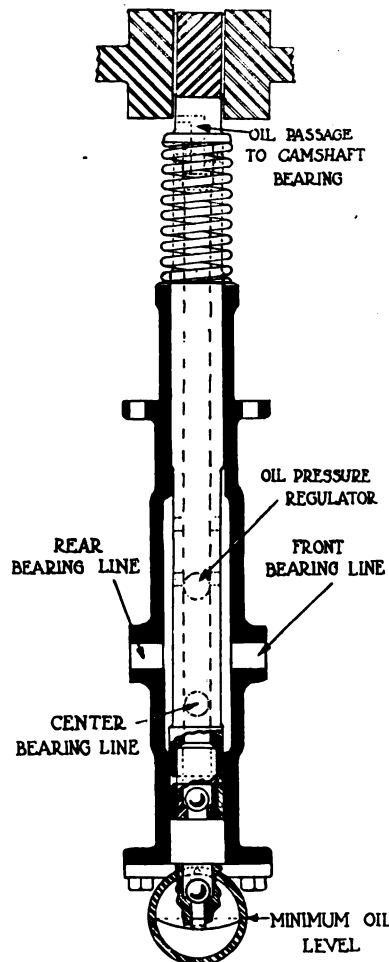
The most common cause of failure to operate is the collection of dust and sediment on the sleeve at the lower end of the pump or from an accumulation of sediment back of the ball check. This needs to be cleaned from time to time.

An additional provision for the lubrication of the two rear cylinders and connecting-rods is provided by $\frac{1}{16}$ in. holes drilled in the oil pump leading to the rear main bearing and in line with the center of No. 5 cylinder.

6—Removal of Engine

TO remove the engine first drain the water from the cooling system, disconnect the water hoses, keeping them attached to the radiator, remove the hood and radiator and detach the wires from the Remy coil and the Gray & Davis generator. Take the ends of these wires so they will not make contact with the frame.

Remove the wire which leads from the starter switch to the starting motor, disconnect the wires on the horn and remove the horn from the engine so that it will not be jammed or damaged.



The oil pump rarely gives any trouble, and if it fails to function properly, dirt should immediately be suspected. The ball valves should be inspected and cleaned. Note the position of minimum oil level

Remove the fan by loosening it on the front end of the cylinder head. Disconnect the rod which leads from the accelerator pedal to the bell crank on the engine and also the dash adjustment wire and tubes from the carbureter.

Remove the spark and throttle control rods where they attach to the carbureter, throttle levers and the spark control shaft which extends through the center of the cylinders.

Remove the three floorboards and the pads on the clutch and brake pedals and disconnect the two rods attached to

the front pedal and emergency brake hand lever.

The torque tube may then be disconnected from the rear of the transmission. This is held in position by a cap fastened with a number of bolts. To disconnect the universal joint the rear end of the body must be raised to allow the front hangers on the rear axle to turn until the spring connection is in front of the axle tube. This is best accomplished by placing a jack under the center of each rear spring.

If the brakes are very tight it will also be necessary to disconnect the rods which run from the brake shaft to the brake lever before the axle can be moved toward the rear to disengage the two parts of the universal joint. There are two balls fitted on the cross pin and the rear half of the universal joint. Care should be taken that these are not lost.

After the universal joint is disconnected the front end of the torque tube is allowed to drop to the floor and the rear of the car lowered to its normal position if it cannot be held so that there is no danger of falling. Next detach the ground wire which leads from the storage battery to the stud on the top of the transmission and remove the four cap screws which attach the transmission to the motor. This will allow the transmission to be removed.

Next remove the pan underneath the flywheel and loosen the nut which attaches the motor to the cross member of the frame. Next loosen the web between the sides of the motor and the frame of the car. Disconnect the oil gage wire from the motor and loosen the packing nut which attaches the exhaust pipe to the exhaust manifold.

The two bolts which attach the front motor bracket to the cross-member of the frame may then be removed and the motor will be ready to raise from the chassis. A very convenient sling for raising the engine can be made by using about 12 ft. of $\frac{3}{4}$ -in. rope.

Pass one end of this rope under the two side arms of the motor, next cross these over the top of the motor, pass the other end under the gear cover and lift the motor out by means of a crane or chain block. (To be continued)

St. Louis Show Sold 850 Cars

ST. LOUIS, MO., March 8—A canvass made since the recent Automobile Show closed indicates that every exhibitor made sales during the show and that every distributor closed with new dealers.

During the show about 4000 out-of-town dealers were listed from ten states—Missouri, Illinois, Kentucky, Arkansas, Tennessee, Mississippi, Louisiana, Oklahoma, Texas and Nebraska. The canvass reveals that about 850 cars valued at \$1,500,000 were sold at the show.

Payne President of Talman Supply Co.

RICHMOND, VA., March 8—At the annual meeting of the Talman Auto Supply Co., Inc., the following officers were elected: President, R. W. Payne; vice-president, H. B. Gates; secretary and treasurer, N. E. Pate.

Building a Business That Is *Different*

Brewer, Who Two Years Ago Had Nothing But Determination and an Ideal, Achieved His Success by Using "Clean" Business Methods and— But Read His Story



W. L. McCABE
Treasurer



C. P. BREWER
President



FRED B. HUFFMAN
Secretary



JAS. G. BACON
Vice-President

TWO years ago C. P. Brewer, Spokane, had nothing but the determination "to build the cleanest, biggest, best motor business in the West." Today he is president of the Brewer Motor Co., distributor for the Saxon, Westcott, Cole, Fulton and Indiana trucks, and the Truxton truck attachment in eastern Washington and northern Idaho. In that time approximately 1000 sales have been made. And, as Brewer says, "that is a pretty good start."

Brewer wanted to build a business that would be different—a business that would demand public attention. He realized that the automobile business was then considered a game; that dealers themselves oftentimes believed that it was not a straight legitimate business—and that good business methods, energetic work and judgment were not always applied. He therefore decided that the first thing he would do would be to make his business "clean" and to apply business methods that had succeeded in other fields. That alone would make his business different, demand public attention, and the "biggest" and "best" would follow in natural sequence.

The first thing Brewer did was to install a cost system that would show him where his business stood at the end of each month. This not only shows him what he has made and what he has lost, it also shows him where that gain or loss occurred. And thus the leaks that would in time ruin the business can be stopped.

This system has demonstrated the used car business to be one of the greatest leaks—and it has shown a method whereby the loss can be covered. In that section of the country most sales involve a used car, and Brewer has found it absolutely necessary to keep his stock of used cars down to a minimum. This in turn

Success in Business

is the result of proper planning plus determination to carry out the plans one has made. This is an interesting story of a dealer who, after studying the industry, determined to build the cleanest, biggest, and best motor business in the west. And he has.

Read how he did it.

necessitates careful allowances. Used cars are "bought," not "sold," on an allowance that will permit resale. Brewer has also found it a good investment to specialize in rebuilt cars, particularly in the case of used cars of the make sold by his company. By this, the car is thoroughly overhauled, worn parts replaced, and the car repainted if necessary. Careful buying and rebuilding all used cars are solving his used car problem.

Division into departments has been found to be absolutely necessary in order to promote efficiency, divide responsibility and permit the tracing of leaks. These departments are: The retail sales department, wholesale department, used car department, shop department, service department, parts department, truck department, battery service department, collection department and accessory department.

The advantage of this division is seen at a glance. Ordinarily the shop and service departments are under one head—and the profits of the shop are eaten up by the losses of the service department

—and if in the end no loss is noted, everything is considered as well as could be expected. But if the service department has to stand on its own feet, and show up its actual loss each month, methods will be devised whereby that loss may be decreased. The same idea applies to the other departments.

Brewer wanted to make his business clean, and he has. He also wanted to make it different—to attract public attention. And that he is doing by distinctive newspaper advertising. In the recent Liberty Bond issue the Brewster motor car was advertised in full page spreads—telling the people to first buy bonds, and then to buy cars from him with them—each \$100 bond being worth \$105 in return for a car sale.

This is only one example. Another plan used to obtain distinctive advertisements is through the use of nicknames when mentioning the officials of the company. For instance, Brewer's nickname is C. P., and an advertisement will come out "C. P. says—," and so on through the various officials of the company. Their nicknames are household words in the community, and whenever read, spoken or thought of are linked up with the Brewer Motor Car Co.

How well these methods have succeeded is indicated by the growth of the company since organizing. In the past two years it has moved twice, each time to larger quarters. From 20 to 30 men are employed at all times, and two of these are kept constantly on the road covering the territory. And in the spring "Brewer's Garage No. 2" will be opened up, practically doubling the space at present occupied.

Brewer may not have the *biggest* and *best* business in the West yet, but if he keeps it the *cleanest*, the *biggest* and *best* part will come in time.

Editorial Observation

Why Should It Be?

ONCE in a while in making a round of the show circuit there is encountered a city in which some of the dealers are not affiliated with the association and do not take space in the show. Often this is due to causes which arise at show time, but in many cases it is because the dealer is not a part of the association and declines to take part in its activities.

Perhaps the dealers do not see this as it is seen by an outsider—and as the public views it. When the public sees some of the dealers holding private

shows in their own places of business and taking no part in the general show by the dealers it wonders what the trouble is and is quick to see that the trade in that city is divided.

All of this hurts the trade as a whole, and when the trade as a whole is injured each individual in it is affected. Unless there is some very good reason there is nothing to be gained by a dealer staying out of the association in his city. He should be a member of it, support it and go into the show.

What Ails the Electric Men?

ONE of the lamentable phases of the electric car business has been the lack of harmony and co-operation that has prevailed in that industry. Electric men have been as quick to knock as to do anything else and they have not co-operated as they should have.

Several times efforts have been made to get the entire electric industry lined up on a basis where it could pull together for the good of the whole and the benefit of the individual, but each time plans have not worked out well and the industry is still a very minor factor.

Despite this there are good electric cars on the market and a great many satisfied owners. Dealers in electrics express satisfaction with their business and say it is one that it is profitable, but the one

thing they do lament is the fact that when the dealer in a rival line sets up in opposition in the same town he soon acquires the knocking spirit, and if he does not acquire it himself, finds the germ of it in advertising which is sent to it by his factory to be run in his local newspapers.

It is hard to understand why such conditions can exist among the men in such an important industry, one which possesses such great possibilities. Electric men say that the electric car industry probably will not for a long time, at least, be one of great proportion, but that it will be one of a restricted output, fairly high prices and a good profit. No matter what its possibilities are, they never can attain a maximum unless a better spirit grows up among the people who are building this business.

Open a Show Folder

EVERY dealer and every show manager should have a folder relating to automobile shows. In this he should, throughout the year, put all the information he gets relating to the holding of shows.

Then when the show comes around again he will have available a lot of good ideas about show exhibits and show salesmanship.

Throughout the year we all have good ideas on a great many different

subjects. If we don't keep track of them we lose them, and then they are no more good than as though we had never had them. Some dealers and show managers are keeping folders of this kind and find them of service.

Start the Garden Now

BURNETT & SHERMAN, Ford dealers in Boston, have growing in their second-floor car storage room two window boxes of tulips. These will be of good size and

in blossom in a short time and will be placed on the floor in the salesroom windows on the street front. Good idea, what?

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Window Displays in Business

Editor Motor World: Essentials are in demand and yet economy should be practised in these war times. There are a lot of dealers who fail to secure the trade advantages which should be theirs through failure to inform prospective buyers of the least expensive and one of the most effective methods available to practically every dealer in automobile accessories.

That there are now in service nearly 5,000,000 motor cars in the United States, a transportation factor worth a further expenditure for accessories, which means longer car-life at a time when near future car production will be curtailed, means a golden opportunity and a ready and quick market.

Advertised accessories, of course, all other things being equal, are the most ready sellers. Those using space in the great daily circulations, as well as the class and trade mediums, reaching an interested clientele, are the leaders. The former, to a large extent, create, while the latter always hit the target, even if every shot is not a bullseye. They reach within the charmed circle to always score for a count.

The dealer, who is so much alive that the attractive features of his stock are displayed where either the regular customer or the casual may, at a glance, learn that an accessory is a necessity, is a builder of business, as money expended for conservation, car prolonged life, is as patriotic an investment as though for "Liberty Bonds." The passenger car, in these war times, is a conservator of time, among its other economical advantages. Its employment for utilitarian purposes will aid to win the war.

A practical example of success in stimulating locality trade in nationally advertised products is furnished by a picture of a Hartford equipped window display, which appeared in a recent issue of Motor World, and which has since been made use of by many dealers and jobbers throughout the country. The products of Edward V. Hartford, Inc., were arranged in a very striking and effective window display. The effectiveness was enhanced by Hartford posters and an additional interest was created by the tasteful arrangement of the Hartford multi-colored cartons in which shock absorbers and bump absorbers are shipped. Wherever dealers adopt the plan of pushing advertised goods results follow which have proven that extensively advertised

articles are three-quarters sold, hence the inexpensive, although thorough, window display is a profitable project.—A. W. Waterman, Edw. V. Hartford, Inc., Jersey City, N. J.

Too Many Dealers

Editor Motor World: I read with a great deal of interest the letters from various dealers throughout the country, but I do not agree with all of them regarding the many evils connected with the retail end of the industry.

There are too many retail automobile dealers.

At least, there are too many in my territory; and the manufacturers say that my territory is no different from any other territory in the United States. My figures are gotten from the registrations of automobiles in this state last year, which show that in my territory comprising six counties there were sold last year a total of 801 cars. These 801 cars are divided up as follows: 458 Fords, 304 cars costing \$1,250 or less, and 39 cars costing more than \$1,250. The total value of these cars is \$550,000, and the gross profit or discount on these cars amounted to only \$87,850. The registrations also show that there are 44 dealers.

If the total gross profit were equally divided among these 44 dealers, each dealer would get a yearly gross profit from the sale of cars of less than \$2,000. A small profit might be made from the sale of gasoline and tires, but these supplies are mostly sold by exclusive tire and gasoline stations.

The above figures are gross. Out of these profits must come the cost of establishments, wages, overhead of all kinds, and finally the amount of net profit that the dealers make, which net profit to most of these dealers must be a scant livelihood.

While I have no way of finding this out, yet I believe that about 20 per cent of the dealers are making fair profits and the other 80 per cent are actually losing money.

This condition is due largely to the manufacturers, who send their representatives into every town and hamlet with instruction to place dealers there; legitimate dealers if possible, otherwise "curb-stones" or "owner dealers." Many a good, hard-working young man has been lured from a good position by the rosy picture of future wealth and pleasure to be gained from the sale of motor

cars, only to lose what he had saved.

The manufacturers dispute this fact by referring to the large numbers of other retail stores in each town and city, such as clothing stores, drug stores, and like trades. Yet the gross profit in certain of these lines runs anywhere from 50 to 1000 per cent. Many a drug store or clothing store would make its owners very wealthy, in fact almost millionaires, if it did the volume of business which renders the automobile dealer a very modest income.

There is a very general sentiment among bankers and other financial men throughout the country generally that there is something wrong with the retail automobile business. They cannot explain it, or even suggest any remedy, but they know it. I believe that it is because there are too many retail automobile dealers. I know that there are too many in my territory, because as shown above, there is simply not enough business to support all of them.—W. C. Bringman, Roanoke, Va.

Smile with Sherman

Editor Motor World: When I received the Jan. 30 issue of the Motor World I could not resist complimenting you on the article on page 40 by Ray Sherman.

Enclosed find a copy of the letter I am sending out to the Automobile Dealers' Association. If every automobile factory in the country would print this article and send it broadcast to the dealers I believe it would do a great deal of good, and help to stimulate trade.—V. G. Kibby, T. A. D. A. Secretary.

To Members of the T. A. D. A.:

Have you seen the article in the Jan. 30th issue of the Motor World, by Ray Sherman, entitled:

"Pack Up All Your Troubles in Your Old Kit Bag and Smile, Smile, Smile."

This article is certainly well worth the time it will take you to read it. Dig right into it, read it three or four times, then call a meeting of your salesmen, and see if you cannot get this formula under their skins.

Let us all get together and make this T. A. D. A. a real association. Wake up tomorrow morning with a smile. Let us reach out and shake hands with every one as we meet them. We can give every one the impression that business is fine, even though we may not be selling quite as many cars as we did a year ago.

Let us have a smile for everybody, no matter where we are. If you get in the habit of being glum at home or in your private office, you cannot throw this spell off at a moment's notice when a real good prospect comes into your store.

The man on Motor Row who is going to get the business is the man who knows he is going to get it; the man who is willing to spend money; the man who talks money; the man who dresses and looks as though he had money; the man who can smile.

We should all go into the show next week, and no one should hesitate to say that the prospects for business were never better. In reality the automobile is just coming into its own.

Now, what I have said is just a little touch on Ray Sherman's talk. Get the book and read it. If we will all do as he says it cannot help but stimulate trade.

If you cannot boost the automobile game, why don't you get out, and let some one in who can?

Secretary T. A. D. A.

The RETAIL NEWS

SOUTHWEST

Harry Butler, Stockton, Kan., has bought the Tire Shop from C. Green.

O. M. Richmond, Pittsburg, Kan., will move soon to new quarters.

W. F. Opperman, El Dorado, Kan., has moved his Park Front Garage to larger quarters at West Third Street.

The Norwich Motor Co., Norwich, Kan., has been bought by J. W. Whitmer.

J. M. Holmes, Le Roy, Kan., is having the Brant Building remodeled for his supply business.

Royal B. Douglas, Mound City, Kan., has sold his interest in the Peatman Garage Co. to his partners, Ralph A. Peatman and Ira D. Murray. Douglas has leased the vulcanizing and battery department of the company and will continue to make his headquarters in the garage.

Arthur Sutton, Howard, Kan., has bought the interest of E. T. Hedges in the Hedges-Sutton Garage.

Roy Collier, Bellaire, Kan., has bought the A. P. Shepardon Garage.

Lloyd Prunty, Wamego, Kan., has bought the business of Claude Coggins.

R. L. Dremon and Dr. E. G. L. Harbour, Lawrence, Kan., have moved their garage from New Hampshire Street to Massachusetts Street.

Will Rankin, Ashland, Kan., has sold his garage to Lewis Brook.

L. C. Grider, Rolla, Kan., is building an addition to his supply store.

M. V. McKee, Atwood, Kan., has bought Waldo Blood's vulcanizing and tire shop.

Brown & Mustoe, Norton, Kan., have sold their Willard Battery Service Station to R. L. Ruplinger.

George M. Kellie, Mound City, Kan., has bought Lester Cannon's interest in the Cannon & Kellie Garage, and the firm will be styled Hollis & Son.

L. B. Shepard, Kincaid, Kan., has bought the Caldwell Garage from S. S. Irwin.

Applebee Bros., Mankato, Kan., have bought the Mankato Motor Car Co.

The Geo. E. Mathews Motor Co., Parsons, Kan., opened here recently to handle Velle and Chandler cars.

John Turbull, Jr., Maple Hill, Kan., has bought the Adolph Haubold Garage.

F. M. Horn, Simpson, Kan., has bought the W. J. Sick Garage.

Braxley Boyd, Centralla, Mo., has bought an interest in the David Montgomery Garage.

Ira McMillen, Chilhowee, Mo., has bought the interest of Saylor McMillen in the Two Macks Garage.

Hoffman & Ferguson, Brookfield, Mo., have opened an agency to handle Overland cars.

C. M. Holman, Corder, Mo., has bought the garage of Otto Perry.

The Patton Garage, Huntsville, Mo., has been thoroughly renovated by the new owner, R. E. Brogan.

E. E. Freeman, Platte City, Mo., has leased his garage to Albert Henry, Lawrence, Kan.

The Fulton Auto Co., Fulton, Mo., has succeeded the Maughs & Conner Motor Co.

Hutton & Orr, Brama, Okla., has taken over the garage of Van Giesen & Collins.

Bowers & Jackson, Miami, Okla., has bought the City Garage.

E. B. Barton, Chickasha, Okla., is now sole owner of the garage formerly styled Barton Bros.

The King Motor Co., El Reno, Okla., has enlarged its quarters and now occupies the entire second floor of the Krumm Building.

The U-Tri-Us Vulcanizing Co., Pawnee, Okla., has opened a tire repair shop.

H. C. Lovell, Medford, Okla., has opened a vulcanizing shop.

H. P. Smith, Tulsa, Okla., is building an addition to the Western Auto Supply Co., which he owns.

The Hamilton-Lynch Auto Supply Co., Tulsa, Okla., has moved to a new building on East Third Street.

L. D. Hutchison, Guymon, Okla., has sold his tire repair shop to N. M. Vanderhoofven, Texhoma.

The Standard Tire & Accessory Co., Oklahoma City, has opened a tire and accessory store at 208 West First Street.

Col. L. D. Skelton, Clinton, Okla., has bought the Ozard Garage.

The Muskogee Double Tread Tire Co., Muskogee, Okla., has changed its style to the Standard Tire Co.

The Harris & Wilson Auto Co. has moved to Arkadelphia, Ark., from Junction City, Kan.

The S. R. Thomas Auto Company, Little Rock, Ark., is enlarging its quarters. The stockroom space is being doubled.

T. L. Tincher, Phoenix, Ariz., has opened salesrooms.

Venn & Ennis, Gilmer, Tex., have bought the Coulter Garage.

J. B. Hayden, McKinney, Tex., has opened a supply station.

J. W. Timmons, Delhart, Tex., is building salesrooms and a service station.

A. F. Freis, Beeville, Tex., has added a vulcanizing plant to his garage.

J. A. Wilson and Dewitt Leverton, Canyon, Tex., have bought the Murr Bros. Garage.

S. O. Burkes, Tulla, Tex., has bought the Tulla Vulcanizing Shop from C. J. Bishop.

F. S. McCune, Tulla, Tex., has bought the Highway Garage.

J. F. Ashlers, Richmond, Tex., recently opened a supply store.

Young Bros., Comanche, Tex., have bought the garage of L. T. Lemons.

L. H. Lee, Corsicana, Tex., has moved to a new building on Eleventh Street.

The Apperson Motor Sales Co., Dallas, will soon move to its new building at Commerce and Jackson Streets.

The Texas Truck Co., Dallas, has moved to a new building on Commerce Street.

Charles C. Traphagan, Richardson, Tex., has sold his garage and has joined the Aero Squadron.

The Ferris Motor Co., Ferris, Tex., has moved to a new building.

B. Martin & Co., Coleman, Tex., has moved to a new building.

The Firestone Tire Service Co., Dallas, has moved into a new building at 2015 Main Street.

New Garages.

Dr. S. A. Collom.....Texarkana, Ark.
Byerley & Cole.....Smith Center, Kan.
Bullock & Dinwiddie.....Sylvia, Kan.

Barton Blakeslee.....Neodesha, Kan.
The Universal Tire Stores Co.

Junction City, Kan.
Tom Dawson.....Yates Center, Kan.
J. P. Klammer.....Paola, Kan.
Narramore & Pretzer.....Elmdale, Kan.
Marshall, Derby, and Anderson

Wichita, Kan.
John Harris.....Sharon Springs, Kan.

Grames & Selkins.....Perry, Kan.
C. R. Kirkland.....Paola, Kan.
McCord & Ricketts.....Emporia
Chauncy Dingman.....Chautauqua, Kan.

Barton Blakeslee.....Independence
J. B. Arbutnot.....Baxter Springs, Kan.

C. W. McClintock.....Eminence, Mo.
The C. & A. Auto Supply Co.....Joplin

Bond Motor Co.....Charleston, Mo.
Suttles & LaMar.....Sarcoie, Mo.
Sam Day.....Seymour, Mo.

W. E. David.....Carthage, Mo.
Paxton & Duke (addition).....Independence, Mo.

Jake Van Strein.....Louisiana, Mo.
Pemisot Motor Car Co.....Caruthersville, Mo.

L. B. Machens.....St. Charles, Mo.
Casey & Carr.....Potosi, Mo.

E. B. Pringle.....Grant City, Mo.
The Stockton Motor Co.....Stockton, Mo.

Morse & Dunn.....Mound City, Mo.
John R. Mays.....Corsicana, Tex.

A. W. Montgomery.....Happy, Tex.
E. B. Johnson.....Prosper, Tex.

W. G. Erck.....Cameron, Tex.
Emmett & Carlisle.....Kaufman, Tex.

Sam Culp.....Cooper, Tex.
Lockett & Lockett.....Coleman, Tex.

C. C. Tribble.....Yoakum, Tex.
Hughes Motor Co.....Tulsa

D. R. Norris.....Oklahoma City
Frank Peyton.....Chandler, Okla.

McClintock & Garron.....Roff, Okla.
Roscoe Griffith.....Tulsa, Okla.

Jake Black.....Purcell, Okla.
C. W. McHenry.....Nowata, Okla.

Mountain

The Arrowhead Motor Co. has purchased the garage and equipment of the Utah-Idaho Motor Co. at Provo, Utah.

Linger-Goff Motors & Supply Co., Denver, a new \$50,000 corporation, has succeeded G. W. Linger as Mitchell distributor for Colorado and adjacent territory, and has added the United States truck.

Peters-Tucker-Hay Rubber Co., Denver, Knight tire distributor for Colorado and adjacent territory, has moved to larger quarters at 1525 Cheyenne Place.

Earl Franklin Used Car Co., Denver, has moved to 221 Sixteenth Street.

Mountain Motors Co., Denver, Packard distributor for Colorado and part of Wyoming, has moved into its new building at Speer Boulevard and Sherman Street.

Krenning & Youlee, Pueblo, Col., has formed a partnership to take the Hupmobile agency for Pueblo, Fremont, Huerfano, Crowley and Custer counties.

Dwyer-Mullen-Johnston Tire Co., Denver, recently organized, has opened a Brunswick tire agency for Denver at 1240 Broadway.

New Garages

Williams Garage Co.....Spanish Fork, Utah
Midland Auto Co. (addition)

Green River, Utah
Lehmann A. Lykou.....Sterling, Colo.

Tom Hussie.....Boulder, Colo.

NORTHWEST

W. C. Bedford, Chappell, Neb., has bought the Pioneer Auto Co., which will now be styled City Garage.

Harry Stevens, Hartington, Neb., has bought a half interest in the Elite Garage. The new firm will be styled Duman & Stevens.

R. A. Jenkins, Johnson, Neb., has bought the South Side Garage.

Harry Baughn, Fairbury, Neb., has bought the garage of the Whittet Traeger Auto Co.

Zach Carter, Stapleton, Neb., has bought the garage of N. C. Bower.

Lederer & Ulrich, Battle Creek, Neb., has succeeded J. M. Lederer.

C. A. Niebur, Norfolk, Neb., has purchased the South Norfolk Garage.

The Burnett Auto Co., Norfolk, Neb., Ford dealer, is moving to a new building.

John Rice, Norfolk, Neb., has leased his garage to the Norfolk Motor Co.

H. H. Bigsby, Norfolk, Neb., will open a tire rebuilding shop about March 15.

The Overland Norfolk Co., Norfolk, Neb., has sold its distributing agency to The Overland Nebraska Co.

Reeves Bros., Madison, Neb., have rented the Sporn Garage and are operating a repair shop under the style Norfolk Auto Repair Co.

The E. P. McDowell Motor Co., Billings, Mont., has bought the Public Motor Co., distributor of Hudson, Liberty and Saxon cars.

H. Kool, Alton, Iowa, has sold his implement business and will devote his entire time to his garage.

George W. Newcome, Denison, Iowa, has moved his garage to Main Street.

Clarence Rowe, Boyden, Iowa, has purchased the Matlock Garage.

Carl Dostal, Mawooketa, Iowa, has bought a half interest in the General Battery Station.

Ben H. Wheeler, Reinbeck, Iowa, has sold the Reinbeck Auto Co. to Roy C. Holek.

Wonders & Williams, Marshalltown, Iowa, have bought the Knudson vulcanizing shop at Nevada.

George L. Hayward, Maquoketa, Iowa, has opened a new storage battery station on North Main Street.

C. C. Yohe, Morning Sun, Iowa, has sold the Burlington Way Garage.

The White Pole Garage, Anita, Iowa, has bought the W. T. Biggs Garage.

The Oldsmobile Motor Co., Des Moines, has taken over the Iowa Oldsmobile Co. W. K. Garrard will manage the company.

New Garages

Albert Hansen.....Brunswick, Neb.
L. J. Ritter.....Crab Orchard, Neb.
Trumbull Auto & Electric Co.....Trumbull, Neb.
Hershey Auto Co.....Hershey, Neb.
Machurek & Vanderkolk.....David City, Neb.
Diederich Auto Co.....Norfolk, Neb.
C. E. Palmer.....Sioux City
Nels Kaiser.....Pocahontas, Iowa
C. C. Doran.....Marshalltown, Iowa
Moir & McMullen.....Le Mars, Iowa
Sam Sigman.....Estherville, Iowa
Osage Battery Co.....Osage, Iowa

SOUTH

Morgan White, Maysville, Ga., is now in full control of the Maysville Garage, having purchased the interest of T. D. Miller.

Emmett J. Hale has opened an agency in Athens, Ga., to handle Dixie cars.

New Garages

Palace Garage & Sales Co., Knoxville, Tenn.

MIDDLE WEST

Louis Boyd, Marinette, Mich., will open a vulcanizing shop on First Street, in the Peterson Building.

Bert Todd, Crosswell, Mich., has purchased an interest in the Hall Garage, which will now be styled Hall & Todd.

The Newton Motor Sales Co., Ypsilanti, has opened a salesroom and service station at Michigan Avenue and Adams Street for Nash and Dort cars. The service station will be in charge of Ernest F. Scheffler.

The Kramer-Elgin Co., Grand Rapids, has moved to a new building at 19-25 La Grave Avenue.

The Harley-Bulck Sales Co., Detroit, has moved from 1227 Hamilton Boulevard to 1580 Woodward Avenue. A service station will be maintained at the old location.

The Isbell-Fauver Co., Detroit, has changed its style to the Detroit Rubber Products, Inc., and has added equipment and machinery to its plant.

R. C. Sims, Detroit, has purchased the tire repair and vulcanizing business of A. B. Dygert, 388 Grand River Avenue.

The Bearing Service Co., Detroit, will soon move to a new building at Cass and Willis Avenues.

E. J. DeGayner and Louis Johnson, Iron Mountain, Mich., have purchased the garage formerly conducted by "Guffy" Johnson on West B Street. They will handle all kinds of supplies.

The Acme Truck Sales Co., Cadillac, Mich., has opened its new sales and service station at 2333 to 2337 East Grand Boulevard.

The Michigan Oil & Tire Shop, Battle Creek, has opened a gasoline, oil and tire station at 340 West Main Street.

The Opera House Motor Sales & Garage Co., Pontiac, has been purchased from A. T. Miller by E. W. and C. E. Moore. Hudson, Maxwell and Olympian cars will be handled.

Walter Gnatzig, Watertown, Wis., has been appointed Buick dealer at Whitewater, Wis., and has opened a salesroom and service station.

The Standard Motor Car Co., Columbus, has made extensive additions to its salesrooms at 23 North Fourth Street, and will carry Stewart trucks as well as Hudson cars.

New Garages

Hale & Strand.....Otsego, Mich.
Oliver Garage.....Allegan, Mich.
Astrup & Murray.....Traverse City, Mich.
Elmer Wise & Knott Cobb.....Belding, Mich.
Olive Smith.....Leroy, Ill.
Carl Innis.....Belleflower, Ill.
Hayes Motor Co.....Brodhead, Wis.
Oneida Garage.....Rhinelander, Wis.
Brad-Ford Co. (addition).....Appleton, Wis.
W. F. Horn.....Chippewa Falls, Wis.
Black Auto Co.....Sheboygan, Wis.
John A. Gramza.....South Milwaukee
Dicke Motor Car Co. (addition),
Manitowoc, Wis.

Henry and Jacob Buehler

Sheboygan Falls, Wis.
Appleton Auto Co.....Stevens Point, Wis.
Citizen's Garage.....Hamilton, Ohio

CANADA

R. D. C. Campbell has bought the Reynolds & Stowell Garage in Wetaskiwi, Alta.

New Garages

Ottawa Car Co.....Ottawa, Ont.
Ed Tenny.....Calgary, Alta.
J. S. Latimer.....Okotoka, Alta.
G. H. Altman.....McLeod, Alta.

The Best Way to Kill an Association

A card sent to his friends by Commissioner William M. Webster of the National Association of Automobile Accessory Jobbers

Don't attend meeting. If you do attend, come late.

If the weather is a bit disagreeable, stay away.

When you attend, be a grouch and find fault with the officers, what they do and the way they do it.

Never accept an office—it is much easier to growl, criticize and find fault than to do things.

Get sore and kick because you are not appointed on a committee—if you are, do not attend the committee meetings, then tell everyone how things really should be done.

When called upon by the chairman act indifferent, as disagreeable as possible and say nothing; if you do say anything, show signs of being bored and hurt.

Hold back in your dues as long as you can or don't pay them at all; and if asked to get a new member, act as if you were peeved and too big for such work—promise to and then don't do it.

When the Association adopts a resolution, ignore and belittle it—pretend it was for your competitor but not for you, and when questioned about it, plead ignorance.

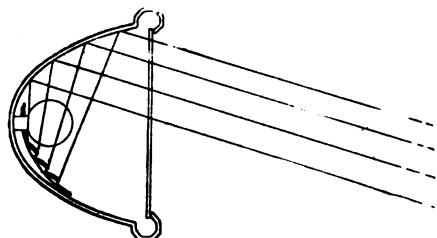
Don't do any more than you have to. What you do, do grudgingly, and when others get in the traces and roll up their sleeves and willingly and unselfishly do their utmost to help matters along, set up a howl that the Association is run by a clique.

Accessories



Letts Headlight Deflector

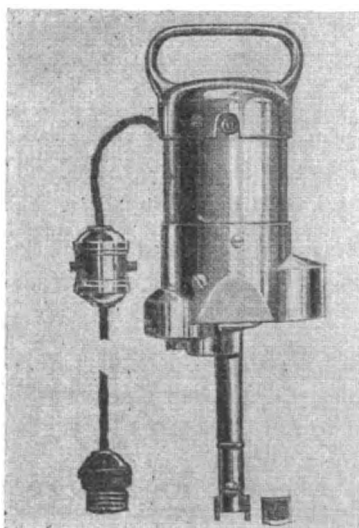
The Letts deflector consists of a light metal shield, which is held in place over a sector of the lower part of the regular lamp reflector by the lamp bulb itself. The



lamp bulb is removed, the deflector fitted in place and the bulb replaced, holding it firmly. A circular translucent shield mellows the direct center ray of the light. Price, \$1 per pair.—Hill-Smith Metal Goods Co., Boston.

Stenman Electric Valve Grinder

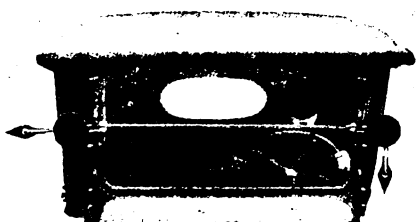
This is a motor-driven valve grinder for garage use and is wound for any voltage desired. The motor imparts a



reciprocating motion to the grinding spindle. Attachments are furnished for grinding all sorts of valves. The complete outfit is \$30.—Stenman Electric Valve Grinder Co., Worcester, Mass.

Autophore Signal

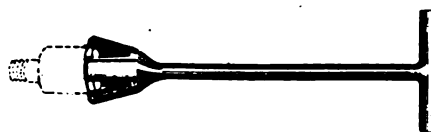
The Autophore signal is a combined mirror and electrically lighted signaling semaphore which attaches to the side of the windshield. Two are used, one on



each side. Moving a small lever throws up the semaphore, which is automatically lighted. Two dry cells will operate the signal. Price \$15.—Kloepfer-Springfield Autophore Co., Springfield, Ohio.

Grease Cup Wrench

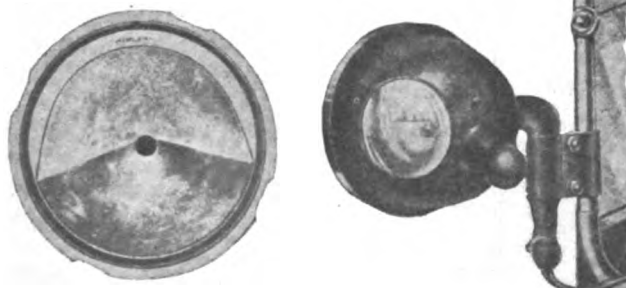
The Universal grease cup wrench is a one-piece steel tool which will fit any grease cup which may be turned down



without touching it with the fingers. The part that fits over the grease cup is corrugated so that it cannot slip. Price 50 cents.—The Prismolite Co., Columbus, Ohio.

Rand Spot Light

A windshield spot light in which the switch is located in the stationary part of the bracket. It is finished in black



with a nickel door 6 3/4 in. in diameter, and is both water and dust proof. The reflector is of brass, silver plated over nickel and highly polished. The upper half has an inclined axis of 2 deg. while the axis of the lower half is horizontal, the two axes crossing at a common focal point to insure a long, clear beam. Price \$3.50.—Rand Mfg. Co., Inc., Haverhill, Mass.

Morey Automatic Lamp Reel

An extension device for garage use in which the lamp cord is wound about the reel and paid out as necessary. The reel is 9 in. in diameter by 2 in. in width,



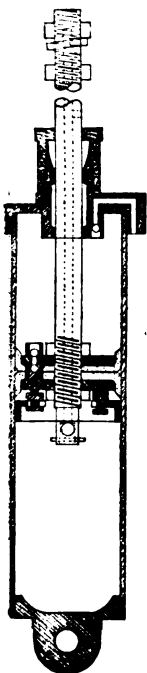
and carries 25 ft. of reinforced cord. The head is provided with a swivel joint and can be turned in any direction. An automatic catch lock stops the cord at any point. A slight pull releases the catch and rewinds the cord on the reel.—Morey Specialty Co., Boston, Mass.

Johnson's Radiator Cement

A liquid cement for repairing radiator leaks. The cement is poured into the radiator, where it mixes with the water and circulates until it reaches the leak, where it hardens immediately on coming in contact with the air. It is claimed to make a permanent seal at the point affected without coating or clogging the cooling system. It is also adaptable to steam or water heating boilers. Price, \$1.75 per quart can.—S. C. Johnson & Son, Racine, Wis.

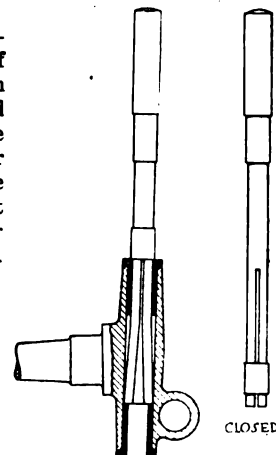
MacKinnon Air Cushion

This device is intended to control the springs and provide an air cushion upon which the car floats. In brief, each cushion consists of a metal cylinder with a plunger in it. The plunger is attached to the car frame and the cylinder to the axle. Means are provided for equalizing the air pressure through a series of automatic check valves.—Automatic Air Cushion Co., Boston.



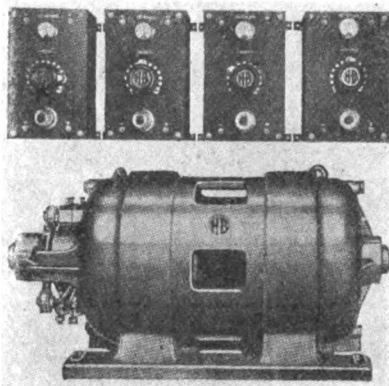
Jiffy Bushing Extractor

This is for use in removing the bushings from the steering knuckles of Fords. The tool has a split end which is clamped together in a vise and held in place with a removable ferrule. The tool is then driven through the upper bushing, which slides the ferrule off the split portion allowing it to spring apart between the bushings so that the lower bushing may be driven out. Price, \$1.25.—G. H. Dyer Co., Cambridge, Mass.



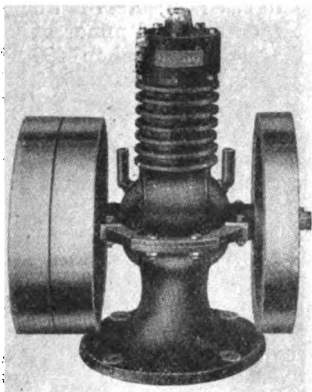
Hobart Battery Charging Outfit

A 32 battery motor generator capacity charging outfit with which batteries in all stages of charge can be handled at one time by means of four lines, each accommodating eight batteries. An automatic voltage control enables batteries of different voltage to be charged on the same line. It is a 500-watt equipment operating on alternating or high voltage direct current circuits. It is 26 in. high by 27 in. in length and weighs 280 pounds. The switch-board is of clear electrical slate on which are mounted ammeter, field rheostat, voltage lamps and two controlling switches. Large commutator surface and low operating speed are features of the device. Price \$175 on a deferred payment plan.—Hobart Brothers Co., Troy, N. Y.



Radium Luminous Material

A preparation containing radium supplied in powdered form. It is mixed with an adhesive to form a paste and applied with a fine brush to dial figures, hands, pointers, etc. In addition to furnishing the material the manufacturers supply customers with data for tests, help to find the materials best suited to any specific purpose, and maintain an experimental laboratory in which continuous investigations for improvement are conducted. There is also an odd job department where dealers, jobbers and wholesalers may send small orders and repair work. Radium luminous material is sold in 1, 5 and 10-gram bottles of different grades suitable to various purposes. Prices range from \$3 to \$30 per gram.—Radium Luminous Material Corp., New York.



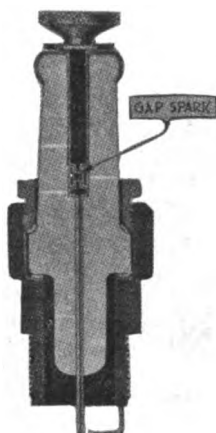
Rummell Super Spark Plug

Employs an internal spark gap inclosed in a small air-tight compartment within the porcelain insulator, for the purpose of decreasing the amperage when the voltage increases and thus avoiding undue heating of the firing points. The insulator contains an upper and a lower electrode, the gap between them being maintained by a porcelain separator and adjusted by a thumb nut at the top of the plug. The shell and bushing are of steel and asbestos jackets are employed between them and the insulation.—Rummell Mfg. Works, Findlay, Ohio.



Sutter-Mayhew Radiator Curtain

A radiator curtain which can be fitted to any make of car and controlled from the dash. During cold weather the curtain is raised to its full height upon starting, thus blanketing the radiator. After the proper temperature has been reached the driver can regulate the amount of radiator surface as required. The installation of the curtain requires no skilled labor. Two brackets supporting the curtain roller are attached to the sheet metal parts of the car by machine screws and nuts. A tube is slipped through one of the top air spaces of the radiator, and the height to which the curtain is raised is controlled by a cord passing through the tube and fastened to catch on the under side of the dash, where it is not visible. The attachment can be made in an hour.—Sutter-Mayhew Co., Detroit.

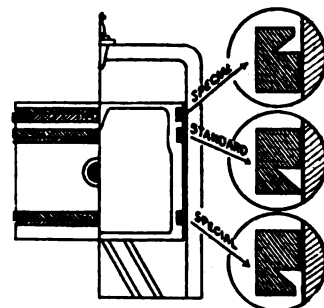


Faultless Air Compressor

A single cylinder, single-acting air-cooled machine, requiring from one to 2 hp. and designed to develop a constant pressure of 200 lb. per square inch and an emergency pressure of 300 lb. with safety. It operates at a speed of 300 to 400 r.p.m. The intake is at the top. The crank case is inclosed and dustproof, with splash lubrication. It has a 3-in. bore and 4-in. stroke. The 45-lb. flywheel is 14 in. in diameter and the tight and loose pulleys are of 13 in. diameter with 2-in. face. The compressor is 23 in. high, occupies 15 x 19 in. floor space and weighs 130 lb. Its capacity is 4 to 7 ft. of free air per minute. Price, \$32.90.—Faultless Engine Co., Kansas City, Mo.

No-Leak-O Special Piston Ring

This ring differs from this manufacturer's standard ring in having the narrow edge trimmed off 1/64 in. It is designed for use in the top and bottom grooves of the piston, with the narrow edge up and down respectively. Thus at each piston stroke oil is gathered into the groove by the square edge on the forward stroke of each ring and emptied on the return. The standard ring, which retains the oil on both strokes, is used in the middle groove.—Automobile Accessories Co., Baltimore.



First Standard Truck Repair Depot

Baltimore Unit, Model for
Others, Houses 2000 Men
and 100 Officers

BALTIMORE, March 9—The first standardized repair depots for the Quartermaster Mechanical Transport Units at this city and Atlanta, Ga., are well under way. Barracks have been constructed to the number of 32 with a capacity for housing 2000 men at each depot. Ground has been broken for the construction of storage houses, crating shops and the repairshops.

This repair depot here is built just as the others in this country and in France will be built, with standardization of buildings, shops and tool rooms, etc., so that a mechanic taken from Baltimore and placed at Atlanta, Ga., or at a depot in France will know immediately where to look for his tools, his barracks, the officers, storage buildings, etc.

The depots will do truck and passenger car repair work, assembly work, crating for oversea shipment, and will store parts and complete vehicles and will act as commissaries for automotive supplies for their respective districts. The depot here will supply eight cantonments and the entire district from Roanoke, Va., to Camp Devens, Mass., including cantonments as far west as Camp Custer, Mich., and Camp Sherman, Ohio.

The Baltimore depot, when complete, will have a capacity for 2000 soldiers and 100 officers. Although at this time tentative plans are under consideration for an increase in additional building construction and acreage to provide for 3500 soldiers, the main repairshops here will employ 1163 men.

The barracks have been erected in rows of four, with each row sufficient for a company and a separate mess hall and lavatory for each row, thus providing separate facilities for each company. The repairshops will probably be completed within 90 days. Equipment has been ordered to be delivered on schedule and will be ready for installa-



Here are some of the trucks which are ready and waiting shipment overseas and to other points. Four trainloads of trucks arrive every day

tion as soon as the buildings are finished. At present the site occupies 90 acres,



So that trucks can be moved over the mud, wooden tracks must be laid

but Colonel Leisering, who is in charge of the depot, hopes to secure the purchase of a nearby distillery plant which has an additional 20 acres and which he intends to convert into storage space.

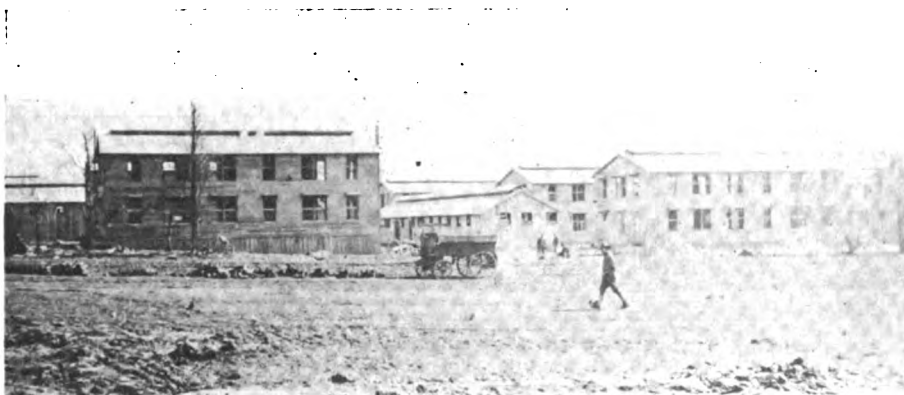
The building plans include four officers' quarters, thirty-two barracks each 32 ft. x 60 ft., eight mess halls, eight lavatories, one administration building, one post exchange, one medical building, one oven bake room, several minor buildings, one mechanical repairshop 480 ft. x 497 ft., one storage plant 720 ft. x 136 ft., and another storage plant 554 ft. x 140 ft.

Trucks are being shipped daily to the depot, although none of the standardized trucks have yet been received. It is expected that the first standardized trucks which are now on the road will arrive within the next week.

An average of four trains per day of trucks, with each train carrying 30 trucks, is being received. Two of the trains coming daily from Detroit and two from Rochester, N. Y. The Detroit trains, in addition to carrying the trucks, bring with each 30 trucks one roadster, one touring car, one tank car and one light repair car.

Each truck shipped is loaded with 2 to 3 tons of extra parts. There are at present about 700 trucks on hand. It is expected that, making allowance for the requisitions coming in daily for trucks, there will probably be 1200 on hand early next week.

The location of the depot at Baltimore is particularly good. It is so situated that it is accessible directly by water and by the Baltimore & Ohio Railroad, which is building five switches through the grounds. It is within a few miles of the freight depots of the Western Maryland and Pennsylvania Railroads, from which the trucks can be delivered overland, and it is located on the Philadelphia Highway between Baltimore and



The type of buildings in which the officers and men will be housed. Buildings are to be the same in other U. S. depots and in those in France

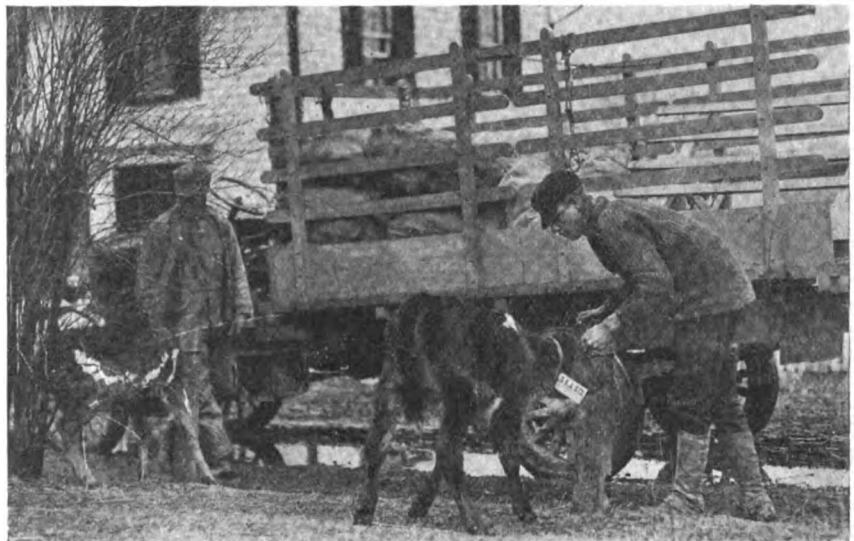
Philadelphia, easily reached from the Lincoln Highway, and therefore convenient for overland drive-aways from the factories assembling the standardized United States war trucks.

Every attention is being given for the comfort and health of the soldiers who will be stationed at these depots. A near-by river will supply fishing and swimming facilities. An extra plot of land has been set aside for a recreation hall, Y. M. C. A. branch and Knights of Columbus building. Drinking water will be secured from artesian wells. Separate plots of ground have been set aside to be converted into small parks and baseball grounds.

Colonel Leisering has suggested that a truck company be established at this camp also for the purpose of making truck drive-aways from the depot to the points of embarkation.

The plan of repair work was outlined in these columns several weeks ago. It comprises a method which includes a shop manual arranged under direction of George Randles of the Motor Transport Section of the Quartermaster Corps.

The shop manual so strictly defines the necessary repairs and procedure that it practically eliminates all opportunities for careless repair work.



Above we see a farmer transferring an 8-gal. can of milk from his wagon to the rural delivery truck. From 400 to 600 gal. travel rapidly to market 20 to 50 miles away, the wagons feeding the trucks with produce

Even calves are carried. The farmer tags the calf, leaves it at the roadside and the truck picks it up and, presto, it is at the market



This darkey is hanging a 3-gal can of cream, properly tagged, on a peg at the side of the road. In a little while, the rural delivery truck picks it up and in 1 hour and 30 minutes it is at the market, 20 miles away

WASHINGTON, March 11—Considering the shortage of foodstuffs, the greatest problem of the near future, the Highway Transport Committee, headed by Roy Chapin, has worked out a plan for rural express services from farms to cities wherever practical. The

committee has made a special study of the conditions in Maryland and the area around Washington, and is arranging for rural express to provide transportation of food for the new 100,000 inhabitants of the Capital.

A national survey has been carried on in co-operation with the Department of Agriculture and the Food Administration. Questionnaires have been sent to farmers and to operators of rural express systems in Maryland and near by and some have resulted in important replies. A blueprint hanging in the office of Roy Chapin shows the complete chart of the service in Maryland, displaying the motor truck routes from Washington to Germantown, Latonville, Redland and Ashton, an aggregate of 93 miles. Seven trucks are used, making a total daily mileage of 286 miles. Out of Baltimore there are 14 such routes, aggregating 1192 miles daily. The good roads of Maryland are one of the fac-

tors that stimulated the service there. Maryland has 1500 miles of good roads, of which 300 miles are used for rural express.

The questionnaires sent out resulted in urgent requests by farmers for better roads. Many said they would go out of business if they did not have better roads to help them get their produce to market. The replies also showed that the trucks not only haul the goods to market but help bring other merchandise back to the farmers from the city merchants. As an example of the work done, one man operating rural service brings 400 gallons of milk and cream daily to Washington. Recently he also hauled 827 bushels of wheat to Rockville, Md. He hauled 200 barrels of corn from the field to Washington in 7 days, and his hauls include eggs, poultry, fruit, potatoes and calves, and on his return trip he takes coal and other merchandise back from the city to the farmer

Plan Rural Express Service

Highway Transport Committee to
Establish Routes from Farms to Cities

No Startling Effect From Order to Curtail

**Factories On Reduced Schedule Any-
way—Expect Car Shortage—
Trucks Booming**

DETROIT, March 11—The curtailed schedule which the National Automobile Chamber of Commerce has announced through its full committee and the War Industries Board, as reported elsewhere in this week's issue of Motor World, has had a clearing effect on the factories throughout the Middle West. The most tangible result which can be named by the factories here will be a scarcity of cars during the summer months. It is calculated that the output of the factories will not fill the demand by 50 per cent.

The ruling made by the War Industries Board has had no internal effect on the factories, inasmuch as nearly all of them were working on a reduced schedule when the word of the definite curtailment order was received. With this true, the only effect that the order has had is to clarify the entire situation and to allow the manufacturers to go ahead and outline their future policies with the dealers, in order to make as fair a distribution of their products as possible.

It can readily be predicted that the shortage in automobiles will begin to make itself keenly felt by the middle of May. The months of March and April are bad for drive-aways because the roads through the factory districts are nearly all gravel and a little sunshine mixed with warm rain soon reduces them to a mass of mud, and they are far more impassable in the spring than in winter when frozen.

With the embargo situation as it stands at present, although matters are somewhat easier than they were during the past months, it is difficult to secure anywhere near enough freight cars to ship away the normal production.

This contemplation of a shortage of freight cars, and the difficulty in drive-aways, renders the car situation one which is without parallel in the history of the industry.

Dealers who have not been foresighted enough to lay in a stock of cars in advance are going to be pinched by a shortage of cars.

Far-seeing factory officials have noted that this will have a corresponding effect on the used car market. In many cases distributors have taken advantage of the lull in sales to fit up used cars in presentable shape for spring and summer sales. It has also been reported that syndicates in certain localities have been buying up used cars for the purpose of creating a modified corner on the market. Nothing definite, however, has been found on this situation. There is no doubt but what the used car market will follow the new car market in regard to the number of cars for sale, in ratio to those desired.

The automobile market is, of course, elastic in that purchasers very often do not re-

quire immediate delivery because of the fact that they can use their older cars for a considerable time after they would ordinarily purchase a new one. This delay, however, only rolls up the coming market to an even greater extent than before, as the potential demand is still there.

Some manufacturers believe that one of the possible effects of the curtailment order, coupled with the big demand which is sure to occur during the coming season, is that local assembling plants will spring up throughout the country, each attempting to fill the market immediately surrounding themselves. This, however, is a matter of conjecture only and nothing definite has been indicated in this field as yet.

The motor truck business is reported good everywhere. All of the factories engaged in this business in this locality are operating at top production. Trucks are leaving singly and in trains from all points of Michigan to the South, East and West.

A large number pass through weekly by way of Toledo, and a plan is now being considered where all trucks bound for the seaboard will carry munitions for the government. The plan is to load every truck to its capacity with such articles as indicated by the government officials and to deliver them at the seaboard, then the truck will run on to its destination and the eastern distributor who is selling this particular line.

This plan, if carried out, will relieve the railroad of thousands of tons of freight and will insure more prompt delivery of the truck than would be possible to secure by freight car.

Truck Division for N. A. C. C.

NEW YORK, March 11—The National Automobile Chamber of Commerce will in the future pay greater attention to motor truck matters. It has decided to have two membership classifications, one devoted to passenger cars, and one to commercial vehicles, each with a second vice-president in charge—H. H. Rice, of the passenger car division, and Windsor T. White, of the commercial vehicle division. A committee is to be appointed to investigate and report upon plans for selling trucks on time, the consignment of trucks and the consignment of parts. More frequent regular meetings of the 45 representatives of truck makers are to be held. These are to be held on the afternoons of the same days as the general meetings.

Another Airplane Mail Route

WASHINGTON, March 9—The Post Office Department has under consideration establishment of an airplane mail route between Washington and Atlanta, Ga., connecting with the several military camps on that route along the lines of the airplane route which will be established between New York and Washington.

Ohio Trade to Meet Friday

CLEVELAND, March 11—The Ohio Automobile Trade Association will hold a get-together meeting in this city Friday evening, March 15. An effort will be made to consolidate the northern Ohio trade in the state organization, of which A. E. Mitzel of Canton is president.

Philadelphia Trade Has Booster Meeting

**Alfred Reeves Tells Story of Opti-
mism and Urges Dealers to
1918 Effort**

PHILADELPHIA, March 11—Three hundred and fifty members of the Philadelphia Automobile Trade Association heard Alfred Reeves, general manager of the National Automobile Chamber of Commerce, deliver an address on the great sacrifices that the industry is making to help win the war.

The address was made at a luncheon on to-day at Hotel Adelphia before an audience made up of the most prominent automobile and business men in the city. The speaker was introduced by A. E. Maltby, president of the Philadelphia association.

The great work by the men in the industry who have turned their plant capacities over to the government for the making of war material has placed the industry the next most important to that of steel and shipbuilding, declared the speaker.

"Automobile manufacturers were among the first to offer their plants and personal services to the government to help win the war," said Reeves. "They are now engaged in making airplane motors, tanks, guns, mine anchors, trucks, ambulances, submarine chasers and scores of other war products needed to whip the Hun."

He reminded his audience that this was a "history making" and a "sacrifice making" period, and not a "money making period," and that the dealers would be required to readjust their business to the new conditions created by the times.

"You must make all sacrifices in the same cheerful fashion that President Wilson does when he assumes his responsibilities in Washington," he said. "In making these sacrifices, remember that any job back of the first line trenches is easy by comparison."

The speaker congratulated the dealers on their optimism and energy, expressing the belief that the trade was due for an excellent spring season selling because cars are needed by every farmer and business man who wants to conserve his time and increase his efficiency. The country, he said, has realized that utilization of the car in business has helped solve the coal and railroad problems, as well as opened up new acreage for the production of food.

"These facts predict that there will be an enormous demand for the automobile this year, but there will be a reduction in their output to permit the big factories to handle war work," he said.

The speaker suggested new plans for dealers to follow this year, new lines to take on with their present salesforce and rearrangement of business methods making for greater efficiency. He advised the dealers in Philadelphia to co-operate more extensively and abandon petty controversies among themselves.

Following the luncheon the dealers were made acquainted with the speaker through President Maltby. Reeves later answered scores of questions of a private nature asked by Philadelphia dealers aiming at conducting their business with greater efficiency.

Philadelphia Re-elects Officers

PHILADELPHIA, March 12—The Philadelphia Automobile Trade Association held its annual meeting to-day and elected the following officers and directors: President, A. E. Maltby; vice-president, L. C. Bloch; secretary-treasurer, J. E. Gomery; directors, L. J. Eastman and J. H. Fassitt.

As a new association activity President Maltby is issuing a weekly paper in which the news of the nation and city is given to the members in condensed form. The bulletin has proved popular.

Government Aid for Roads

WASHINGTON, D. C., March 11—A bill before the Senate declares all state roads used by the Government military highways, and binds the Government to assist in keeping them in repair. The bill was introduced by Senator J. W. Smith, who was aroused by deterioration of the highway system of Maryland. The bill states the Government is not to contribute more than two-thirds of the money for repairs and not over \$1,000 per mile. The bill has gone to the Senate Committee on Appropriation.

Ford Sub-Chaser Plant in the East

DETROIT, March 12—Henry Ford has announced that a shipbuilding plant will be completed within 90 days on an 80-acre tract of land on the Lincoln Highway, between Newark, N. J., and New York. This will be a duplicate of the River Rouge plant now being erected, and will turn out submarine chasers at a great rate of speed.

Army Laundry on Wheels

WASHINGTON, March 11—The first portable army laundry built to accompany an army and wash clothes for soldiers in the field arrived here yesterday. The plant consists of a steam tractor and standard laundry equipment mounted on a heavy trailer. It is the invention of J. F. Broadbent and will be inspected by Gen. Goethals and Gen. Gorgas.

Maxwell Extends Drive-aways

DETROIT, March 9—The Maxwell Motor Sales Corp. has established warehouses in each of the following cities: Buffalo, Indianapolis, Cincinnati and Chicago, and expects to establish one in Pittsburgh, to which it is planned to drive each month 200 cars. These warehouses will serve as central stations for certain sections of the country and freight deliveries will be made from them. This will greatly aid distribution of cars as the freight congestion around these parts will thus be escaped. The Maxwell drive-away system has been organized and tried on an extensive plan.

Mason City Stages Automotive Show, Too

It Was Small But It Was Successful—Trucks, Tractors, Cars and Accessories

MASON CITY, IOWA, March 11—Northern Iowa's only motor car and automobile show to be held during the present season was the fourth annual exhibition of the Mason City Automobile Association, which opened for a four-day run on the morning of Wednesday, March 6. The first day eclipsed the opening day of the 1917 show by a fifth larger attendance, while the crowd present at the second day was nearly twice the first day. Friday was the banner day, since the evening was observed as Mason City night. Additional musical numbers were furnished for the Mason City night, and an athletic show, including wrestling and boxing, furnished added attractions.

Twenty exhibitors, all from Mason City, had cars on the main floor of the armory, 100 x 200 ft.

The room was too small to take care of passenger cars, trucks and tractors. As a result passenger cars were displayed at the armory, while trucks and tractors were shown in the salesrooms of the Mason City Auto Co. across the street. Accessories were displayed on the balcony of the armory, and in addition to regular accessories a number of interesting exhibits of farm lighting plants and tractor parts were shown.

The thought of the world war was present in the show and decorations were chiefly flags of the nations, with the Stars and Stripes in the foreground.

Large numbers of festoons and pennants hung from the roof, while palms and potted plants were interspersed along the aisles to give the needed harmony and blending for the brighter colors of the ribbons.

Red Cross workers took advantage of the show, and when promoters allowed them the use of a booth a small flower and lunch counter was opened. Girls dressed in Red Cross uniforms passed through the crowd and sold a large number of carnations and roses each evening. All receipts went to the Mason City Red Cross chapter.

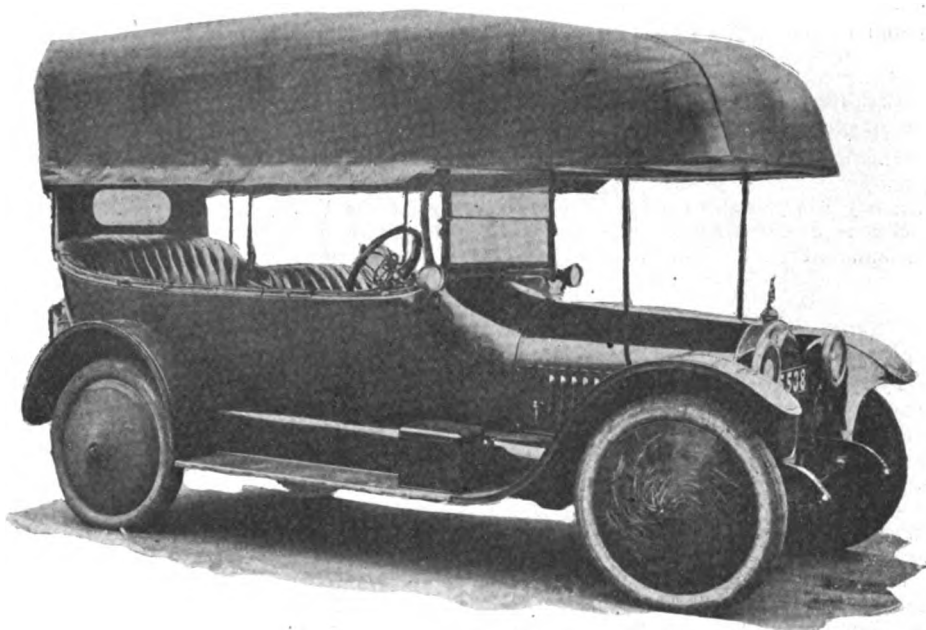
Boy Scouts were also given a booth, and lads attired in their regular uniforms sold war savings stamps and thrift stamps to all who were bent on saving and serving. A second lunch counter and refreshment stand was operated by the Junior Red Cross, which included a number of girls from Mason City's grade schools.

Another Automotive Dealer

PITTSBURGH, March 11—Another passenger car dealer, who heretofore has handled nothing else, has entered the motor truck field. The Painter-Dunn Co., Overland distributor, has added the Fulton truck.

English Trucks Running on Gas

LONDON, Feb. 14—At present 4500 motor trucks are using as fuel gas carried in large rubber gas bags instead of gasoline. Orders are on hand for gas containers for 2500 motor trucks which have not yet been able to obtain them. Only 4 per cent of the total deliveries of gas apparatus has been to owners of private cars, and the use of gas for passenger cars is under the same restrictions as gasoline.



In England, motorists are compelled to use illuminating gas instead of gasoline. This is the first picture showing how the immense gas bags are attached and made a part of the ordinary top. Lately, even gas has fallen under the ban and special licenses are required to permit its use to operate private cars

Civil Rights Bill For Soldiers and Sailors

President Signs Measure Virtually Declaring Moratorium For The Period of the War

NEW YORK, March 11—The Soldiers and Sailors Civil Rights bill which was approved by Congress on March 4 has been signed by the President.

This bill protects soldiers and sailors whose normal ability to meet their obligations has been materially affected by their military service. The most interesting features of this bill are as follows:

It provides that suits begun before a man goes into the service may be postponed until he is able to give them his attention.

It provides that the wives or families of soldiers and sailors cannot be evicted by non-payment of rent where the rental does not exceed \$50 per month. An attempt on the part of a landlord to make an eviction is punishable by a \$1,000 fine.

It provides that when homes are bought on the instalment plan, mortgages cannot be foreclosed for non-payment unless the court decides that foreclosure is just after making careful investigation of all the facts. The court may order all payments refunded or may stay the proceedings altogether.

It provides that non-payment of insurance premiums shall not invalidate policies until one year after the close of the war.

It provides that non-payment of taxes, whether National, State, City or local, shall not result in the sale of property for taxes.

Bird President of Chicago Association

CHICAGO, March 12—George H. Bird, of the Bird-Sykes Co., Paige dealer, was elected president of the Chicago Automobile Trade Assn. yesterday, to succeed Joseph H. Davis. Thomas W. Hay, Chandler dealer, was elected secretary.

Schillo and McShane Join Hands

CHICAGO, March 12—Philip McShane, of Omaha Speedway fame, has formed a partnership with Al Schillo, who was formerly associated with his brother as a Mercer dealer. Schillo and McShane will handle the Biddle in Chicago.

South Getting Drive-Aways

GREENSBORO, N. C., March 9—The serious congestion on the railroads is reflected in the news from Danville, just across the state line in Virginia, that no fewer than forty-eight men and young men of that community are on the road "somewhere in America" either going for or bringing back automobiles from northern factories.

Twenty-one young men have gone to Detroit to pilot as many machines back to Danville. The proprietor of the garage that sent them states that the trip will cost him \$1,200, whereas the freight bill for the cars, if he could get cars, would amount to about half that sum. Twenty other young men are driving cars back from Richmond, and

still others are on their way to Cleveland to bring machines in.

Dealers state that it is almost impossible to secure box cars for automobiles, and in the rare instances when they can secure rolling stock there is no telling how long the cars will be on the road, which makes it impossible for them to promise delivery to their customers. The practice of sending men to bring the desired cars in from the factories under their own power is being resorted to more and more in this emergency.

Studebaker Profits Drop

DETROIT, March 12—The report of the Studebaker Corp. and its subsidiary companies for 1917 shows total sales of \$50,147,516, which is \$11,841,078 or 24 per cent less than the 1916 amount. Net profits declined from \$8,611,245 in 1916 to \$3,500,741 last year, a drop of 59 per cent. The net earnings for 1917 amount to 9 per cent on the \$30,000,000 common stock as compared with 26 per cent in 1916. Last August, the dividend was cut from 10 to 4 per cent. A. R. Erskine, president of the company attributes the heavy loss in gross business and profits partly to unsettled conditions after America's entrance into the war, and partly to the company's concentration of attention on government orders and shipments with the result that the manufacturing schedule of motor vehicles was reduced, and the plant rearranged on a war basis. Cost of financing operations increased, and to carry the heavy surplus inventory investments, the company obtained bank loans which reached a maximum of \$13,231,500, an increase of \$7,000,000 over the average of 1916. Before the end of the year, this maximum was reduced to \$7,400,000.

Truck Show for Pittsburgh

PITTSBURGH, March 9—Because of the great interest manifest in motor trucks throughout the Pittsburgh territory at this time, the Automobile Dealers' Association has decided to hold a motor truck show at Motor Square Garden within the next few weeks. While the date has not been positively decided upon, the indications are that an exhibition will be put on during the week commencing Saturday, April 8, and continuing to April 13, inclusive. While the truck exhibition is an unusual departure, the success of the venture seems to be already assured. More than one-half the space available in Motor Square Garden has already been contracted for by Pittsburgh truck dealers.

Signal Corps Has 100,000 Men

WASHINGTON, March 9—One hundred thousand aviators and mechanics now form the flying section of the Signal Corps. More than 5000 flyers have graduated from the ground schools in this country, while 5000 more are now taking the course and 10,000 additional students are awaiting their opportunity to enter the schools.

Great Interest Shown By Dealers in Trucks

Answers to Questionnaire Reveal Particularly Promising Future —Other Matters

Editor Motor World: Recently we sent out a letter and questionnaire to Guaranty dealers in the eastern section of the United States. We asked many questions regarding business conditions, ability to sell cars at this season of the year, whether or not dealers were going to stock as many cars this year as last year, etc. We think you might be interested in the returns received from the first 100 dealers, and are enclosing tabulation of the answers.

We believe that the answers we received are very encouraging, and some of the dealers went as far as to express a good deal of optimism so far as this coming spring and summer season is concerned.

The truck business especially seems to be very encouraging and practically every dealer who replied to our questions stated that he either was selling a truck now or intended taking one on. —Guaranty Securities Corp., A. O. Dietz, Department of New Business.

Survey of 100 Dealer Questionnaires by Guaranty Securities Corp.

1. Difficulties in getting cars.....
.....35% "Yes," 63% "No"
2. Stocking cars this winter.....
.....73% "Yes," 20% "No"
3. New cars on hand to-day (average per dealer)..... 14
- 3a. New cars on hand last year this time (average per dealer)..... 14
4. Used cars on hand to-day (average per dealer)..... 6
- 4a. Used cars on hand last year this time 6
5. Difficulties in selling cars.....
.....46% "Yes," 47% "No"
6. Prospects for spring business....
62% "Good," 26% "Fair," 6% "Poor"
7. Prospects for an increase along truck lines....77% "Yes," 6% "No"

Commerce to Sell \$100,000 Stock

DETROIT, March 9—The Commerce Motor Car Co. will immediately start production on its \$2,000,000 order from the government for 1-ton trucks. The company's contract with the government is taken at a fixed price. All material required has been purchased or contracted for at prices which insure the company a satisfactory profit on the government work. It will be necessary for the company to increase its working capital so that it can carry the heavy inventory of material necessary for the government order and continue the regular commercial business and meet the

cost of operating three shifts of men a day. The directors have therefore authorized the sale at par of \$10 of \$100,000 of treasury stock. The stock will be offered to the shareholders pro rata to their holdings. For every three shares they hold they will be privileged to subscribe one more. The entire \$100,000 of treasury stock has been underwritten by Walter E. Parker, president of the company, who will take and pay for at par any of the stock not covered by pro rata subscriptions of the stockholders. It is reported the regular commercial business is increasing rapidly.

Truck Converters from Youngstown

YOUNGSTOWN, OHIO, March 8—The Lanton Truck Co. has been organized here by A. W. Lau to make converters for Fords and other light cars and Cadillacs to make them into 1 and 2-ton trucks. The company plans a production of from 7500 to 10,000 units the first year. The first shipment of these units was sent East last week. Associated with Lau are W. R. Wirby, of the W. B. Pollock Co.; J. W. Riddle and M. D. Davidson, who is sales manager.

Ross-Lambert to Make Inner Tubes

CINCINNATI, OHIO, March 11—The Ross-Lambert Rubber Co. has been organized with an authorized capital of \$3,000,000 to manufacture inner tubes of a new model, known as the truss type. The company will also manufacture other rubber accessories. The concern is negotiating for a site near Cincinnati and the directors hope to have a plant in operation in two months. Officers elected were: Charles E. Ross, Columbus, president and general manager; C. H. Lambert, Hartwell, O., vice-president and secretary and A. B. Lambert, treasurer.

16th Used Car Report Makes Its Appearance

Revised and in New Form With
Stiff Binder—64 Associations
Now Affiliated

CHICAGO, March 9—The National Used Car Market Report put out by the Chicago Automobile Trade Assn., has been issued in its sixteenth edition in a new form. The contents of the book are now printed as a filler for a stiff board binder. When each one of the quarterly reports is received, the user is requested to take on the old filler, send it back to Chicago and insert his new filler. This provides a better cover, makes the book lighter in weight for mailing purposes and facilitates the work in various other ways. Recently there has been added to the book the American, Brewster, Comet, Doble, Holmes, Jones, Maibohm and Pan-American.

Co-operation is now being received from 64 associations. New additions are the associations in Battle Creek, Mich.; Cleveland, O.; Council Bluffs, Ia.; Danville, Ill.; Decatur, Ill.; Duluth; Evansville, Ind.; Ft. Dodge, Ia.; Jackson, Mich.; Kalamazoo; Lancaster, Pa.; Lincoln, Neb.; Mankato, Minn.; Muncie, Ind.; Sioux Falls, S. D.; St. Paul; Terra Haute, Ind.; Toronto, Can., and Windsor, Can.

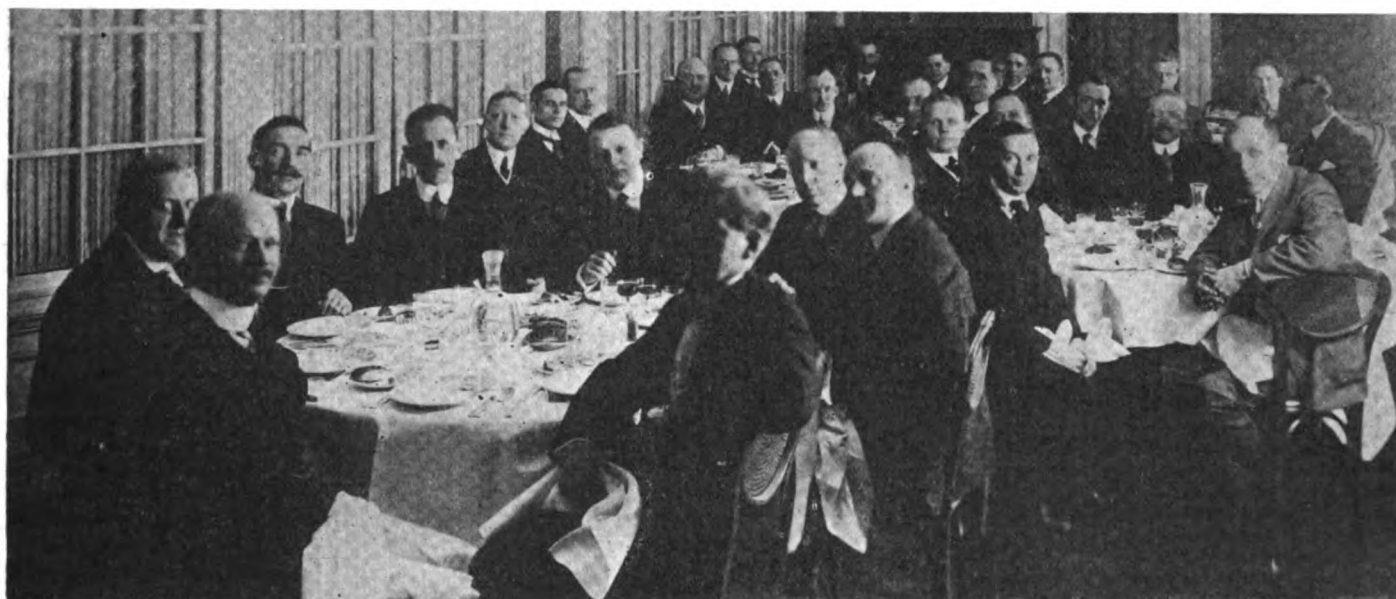
King Changes Its Personnel

DETROIT, March 9—Changes in personnel of the King Motor Car Co. give practically an entirely new staff of executives and also a change in sales policy of the company. Following the resignation of H. C. Bradfield, the office of ad-

vertising manager has been abandoned, and hereafter the advertising business will be handled by W. B. Nesbitt of New York. Sales and advertising details at the factory will be handled by Robert Walsh, who is assistant to Wallace C. Hood. W. B. Nesbitt has been made vice-president, and it is stated that he will act as personal representative of Artemas Ward, Sr., who is strongly interested in a financial way in the affairs of the King company. It is reported that he recently pledged additional capital of \$500,000 to the company, which has been partly paid in. H. A. Church has resigned as secretary and treasurer of the King company, and is succeeded by H. D. McCullough, formerly of the Aluminum Castings Co., Detroit. With these changes the executives of the King company are: President and chairman of the board of directors, Artemas Ward, Jr.; secretary-treasurer, H. D. McCullough; sales manager, Wallace C. Hood; vice-president, W. B. Nesbitt; assistant sales manager, Robert Walsh; purchasing agent, J. R. Emerson. It is planned to build 1500 cars during the coming year.

Gillette Rubber Triples Output

EAU CLAIRE, WIS., March 8—The Gillette Rubber Co., Eau Claire, Wis., is increasing its output from 500 tires to 1500 tires a day, following the installation of a new calender machine, valued at \$20,000, which was purchased from the Adamson Machine Co., Akron, Ohio. Before the close of summer it is hoped to bring the capacity up to 2000 tires a day. Two new 350-hp. boilers also have arrived, and are being installed to furnish steam for the calender, which is one of the largest machines of this kind ever constructed.



DINNER GIVEN BY THE CHAMPION IGNITION CO., Flint, Mich., during the Boston show to New England jobbers. Among those present were: R. P. Green and E. A. Allis, Motor Car Equipment Co., Boston; Harry Schleinger, Motor Car Equipment Co., New York; C. H. Curry, Curry Bros. Oil Co., Boston; L. Wilson and Mr. Jones, Decatur, Hopkins Co., Boston; Fred Linscott, Linscott Supply Co., Boston; Fred Sweet and R. Green, Green & Sweet Co., Boston; Mr. Page and Mr. Burrell, American Motor Equipment Co., Boston; R. Aldrich, Iver Johnson Sporting Goods Co., Boston; J. Green and W. King, Joseph H. Green Co., Boston; F. Murray, Post & Lester Co., Boston; W. Lewis, Post & Lester Co., Providence; Mr. Carroll, Post & Lester Co., New Haven; Mr. Beebe, Post & Lester Co., Bridgeport; N. E. Packard, N. E. Packard Co., Brockton; E. S. Darling, Darling Auto Supply Co., Auburn, Me.; F. Waters, Tarbell-Waters, Springfield, Mass.; H. Reynolds, Boston Post, Boston; Le Roy Pelletier; Albert Champion, president, and W. S. Isherwood, sales manager, Champion Ignition Co., Flint.

Salesmen's Congress to Meet April 24-27

Meeting Is Held Early This Year
to Discuss War Problems—
Third Session, and in Detroit

DETROIT, March 9—The World's Salesmanship Congress, third annual session, has been called in Detroit, April 24, 25, 26 and 27. The meeting has been called in advance of the usual dates in order to discuss the war questions at present troubling the nation's business men. The part of salesmanship in winning the war will be a prominent feature of the program. The leading speaker will be Herbert N. Casson of London, England, who is especially delegated by England to address the congress. Other speakers have not as yet been announced, but it is assured that the biggest possible men will be secured to discuss the vital points at issue. The following is a list of topics:

"To Win the War, Can the Nation Do Without the Individual Business Man?"
"To Win the War, Must Business Earn to Maintain the Nation's Credit?"
"Must the War Be Waged Entirely on Present Savings, Not Earnings?"
"What Businesses Are Non-Essential?"
"Is 'Non-Essential Industry' a Recent and Verbal Invention?"
"What Shall We Do with Business, to Win the War?"

"Is Enough Consideration Being Given to the Difficulty of Starting Up a Business That Has Been Shut Down?"

"Is Enough Consideration Being Given to the Fact That We Are Preparing for a Temporary, Not a Permanent War?"

"Are Labor and Materials the Only Things That Can Be of Value in Support of Our Fighting Machine?"

"Are Recent Trade Restrictions Affecting the Spirit of the Nation?"

"Are We Sentencing Ourselves to a Seat on the Economic Doorstep of the Universe?"

"Is It Illegal and Unpatriotic for Newspapers to Solicit Advertising and Stimulate Sales at This Time?"

"Will the Restrictions of the Magazine-Zone-Legislation Help Business and Help Win the War?"

"Is So-called American Extravagance a National Commercial Asset or Liability?"

"Does the Collapse of the Railroads Argue the Possibility of National Industrial Paralysis?"

"Is It More Patriotic in War Times to Wear Old Clothes?"

"Are the World Nations Going Hopelessly Bankrupt?"

"Can the Nation Keep on Going Bankrupt Indefinitely and Still Carry On?"

"The Projected War Finance Corporation."

"Economic Destruction vs. Economic Security."

"Artificial Restriction vs. Free Play of Supply and Demand."

"Quantity Output of Shells vs. Quantity Output of Motor Cars, Safety Razors and Typewriters."

"Winning by Weight of Output."

"The Difference Between Adjustment and Curtailment."

"The Citadels of Cash, Credit and Commerce."

"Price Fixing."

"War Ends, but Business Never Does."

"An Ounce of Organized Trade Preservation Now vs. a Pound of Ruthless Trade Warfare Later."

"Either We Must Have the Biggest National Scrap-Heap Ever Witnessed, or Else We Must Make the Biggest Efforts Ever Recorded in Industrial Organization."

"Individuals, Not Nations, Do Business."

"Shall We Continue to Build, Repair, Borrow, Lend, Buy, Sell, Venture and Trust?"

"The Economic Weapon the Final Factor in the War."

"Making the World Free Not Only for Democracy, but for Trade."

"How England Is Doing It."

"It Can Be Done."

The Sale: First Factor of the Selling Process.

The Man: Second Factor of the Selling Process.

The Ship: Third Factor of the Selling Process.

Preparation: First of Preparatory Steps of the Sale.

Prospecting: Second of Preparatory Steps of the Sale.

Approach and Audience: Third of Preparatory Steps of the Sale.

Sizing Up the Buyer: First of the Presentation Steps.

Gaining Attention and Awakening Interest: Second of the Presentation Steps.

Persuading and Creating Desire: First of the Convincing Steps.

Handling Objections: Second of the Convincing Steps.

Securing Decision and Obtaining Signature: First of the Closing Steps.

The Get-Away and Future Orders: Second of the Closing Steps.

Washington to See Liberty Planes

WASHINGTON, March 9—Hangars now being constructed here in Potomac Park to accommodate two airplanes, it is reported, will house two Liberty airplanes. These airplanes, it is said, will make flights over Washington within the next few weeks to demonstrate the real ability of the Liberty airplanes. Congressmen and other officials will accompany aviators in their flights.

Yale Will Make Trailers

YALE, MICH., March 5—The Yale Trailer Co. has been organized with a capital stock of \$10,000. The following officers were elected: President, Rene V. Card of Detroit; vice-president, Irving Card of Toledo; secretary and treasurer, Earl R. Card of Yale.

Canadian Electric to Sell Defender Lock

DETROIT, March 11—The Canadian General Electric Co. has been appointed sole distributor of the products of the Defender Auto-Lock Co. in Canada. On April 1 the retail prices of the Defender Auto-Lock will be raised to \$4 in the United States and \$5 in Canada.

Rieman President of Elgin

CHICAGO, March 11—C. S. Rieman has been elected president and general manager of the Elgin Motor Car Corp., which he founded 2 years ago. He has been vice-president and general manager of the company since its organization.

Freight Permits Now Possible with Limits

When Cars Are Not Being Used
for Something Else the Automobile
Factory Often Can Get Some

DETROIT, March 9—The embargo placed upon the handling of motor cars by the railroads early in January has been so far modified that permits may now be obtained through the Freight Traffic Commission for a limited number of carloads when freight cars are available. The dealers are taking advantage of this privilege and shipping their cars at least part of the way when possible. Permits are frequently granted as far as Newark, N. J., or Poughkeepsie, N. Y., when they cannot be had for the whole distance.

Factories within driving distance of New York, and so placed that they can use the Lincoln Highway or good state roads, are maintaining a regular drive-away service, usually sending cars or trucks in groups of five or six only on account of the limited hotel accommodations. No regular schedule has been possible yet owing to uncertain weather and the far from perfect condition of even the best roads. In some cases no shipments have arrived since last December.

Four Crow-Elkhart cars were recently driven through from Elkhart, Ind., to New York, via Pittsburgh, in 5 days. Some have not been so fortunate. It is said that the road from Detroit is crowded, and that many stalled cars and wrecks are passed on the way.

Often as many as 15 or 20 Packard cars and trucks are driven through daily. Wherever possible cars are carried on the trucks. When not enough trucks are included in the day's drive cars are driven also. Little or no attempt is made to use the railroads to the eastern seaboard.

Studebaker is now driving all cars east. The last rail shipment left the factory Jan. 1 and has just arrived. Cars are also driven from New York to purchasers in other cities.

Buicks are driven in groups of five, with a captain for each group, at the rate of 20 cars a day. When possible, some are shipped to Buffalo by boat and by rail from there. The New York branch has a storehouse at Port Huron for its own use and to relieve factory congestion. The Reo company has men constantly on the lookout for possible rail shipments, but expects to drive cars overland as soon as the roads improve.

The road from Detroit to Pittsburgh is none too good. The section between Toledo and Norwalk is the worst, being badly rutted and muddy. From Pittsburgh the Lincoln Highway is followed most of the way, but even that is cut up and very hilly part of the way. Between Princeton and Rahway, N. J., it is not being used at present, a detour being made via Perth Amboy.

Fuel Agreement Big Benefit to Industry

Manufacturers and Government Put Things on Clear Basis—No Great Reduction to Follow

NEW YORK CITY, March 7—An agreement has been reached between the National Automobile Chamber of Commerce, through its Fuel Committee and the War Industries Board, with regard to passenger car production, which is a very favorable one as relating to the automobile industry, and has every indication that the War Industries Board is giving the most careful consideration to all industries.

The agreement is good evidence of the fact that official Washington recognizes how essential it is to maintain all industries whether so-called direct war industries, that is, those manufacturing guns, shells, clothing and everything needed in the war zone, and also what has been designated as non-war industries, namely, those in which the products are not so entirely utilized in the war zone.

According to the agreement the automobile manufacturers are asked to reduce their 1918 output approximately 30 per cent as compared with what their plans for 1918 production were on July 1, 1917. Supposing at that time a firm committed itself to parts and materials for 100,000 automobiles, such a firm, under the new agreement, would produce 70,000 machines by July 31, 1918.

Such an agreement is very favorable to the automobile industry in that in the majority of cases it will not mean any different program of production than what the different factories have been pursuing for many months. In other words, the majority of factories have been manufacturing at a lower pace than 70 per cent of their commitments for last July, and as such the present agreement does not have any effect. There are other companies which may have been manufacturing but 50 per cent of their commitments, and such will, under the agreement, be permitted to increase from now until next July in proportion as they have dropped behind the 70 per cent mark from last July up to the present time.

The agreement should have a very stabilizing effect on the industry in that there is now a definite understanding with the government, and such agreement means a recognition on the part of the government of the essential work of the automobile industry in war times. It was very questionable if such a favorable agreement could have been accomplished last November when the chrome steel crisis arose, and it is very questionable if anything so favorable could have been arrived at in January when the coal crisis was on.

The present curtailment can scarcely be looked upon in the sense of the word, as there will only be two or three firms

at the outside that may have to reduce present production.

Undoubtedly the right of appeal by any manufacturer to the War Industries Board is covered in the agreement, as there is nothing to indicate that the War Industries Board has not the fullest appreciation of the national and world necessity of the automobile as a conservator of man power in these war days.

The present agreement, besides being with the War Industries Board, which covers the question of materials for automobiles, and also takes consideration of transportation, etc., further is an agreement with the Fuel Administration and insures the manufacturer coal. This is a very considerable factor in the case.

G. M. Earnings Are \$26,285,951

DETROIT, March 9—The report of the General Motors Corp. which succeeded the General Motors Co. on Aug. 1, 1917, shows that the General Motors properties earned undivided profits of \$26,285,951 during 1917, after charging off \$6,901,889 for war taxes and extraordinary expenditures. This is equal to 34.2 per cent on the \$76,873,300 common stock outstanding on Dec. 31.

The undivided profits in the 5 months from Aug. 1 to Dec. 31, amounted to \$13,792,983 as against \$12,492,968 in the first 7 months of the year. The former covers the operations of the General Motors Corp. and the latter those of the General Motors Co.

The balance sheet as of Dec. 31 shows current assets of \$80,275,577, against current liabilities of but \$15,524,044, giving a net working capital of \$64,751,533. Cash on hand at the end of the year totaled \$18,865,645.

Surplus on the common stock amounts to \$26,285,951 as against \$23,731,952 at the date of reorganization.

Kelly-Springfield Earns 49 Per Cent on Common

CLEVELAND, March 9—The Kelly-Springfield Tire Co. earned gross profits of \$4,323,955 in 1917, an increase of 30 per cent over 1916. After deduction of preferred dividends but before deduction of war taxes, this amounts to \$12.40 a share on the common stock (\$25 par). After deducting dividends, interest and reserve for sinking fund and profit sharing, a surplus of \$1,453,585 remains. This is 50 per cent more than the surplus of \$957,571 on Dec. 31, 1916. Assets totaled \$15,395,835 and current liabilities amounted only to \$1,273,701, leaving a net working capital of \$14,122,134.

La Salle County Organizes

LA SALLE, ILL., March 7—About all the leading dealers and garagemen in this county have organized the Garage Owners' and Automobile Dealers' Association of La Salle County. They have affiliated with the Garage Owners' and Automobile Dealers' Association of Illinois. The officers are: President, Matt Knauf, Peru; secretary-treasurer, Will Kinder, La Salle.

Prices Again Start on an Upward Course

Overland, United States Truck, Oakland, King and Jones Mark Up the Figures for Spring

CINCINNATI, March 6—The United States Motor Truck Co. has increased its prices, to take effect on and after April 15. The prices follow:

Model	New Price	Old Price
E, 2½-ton chain drive..	\$2,800	\$2,650
H, 2½-ton worm drive..	3,250	2,950
D, 3½-ton chain drive..	3,500	3,350
J, 3½-ton worm drive..	3,950	3,650
K, 5-ton worm drive....	4,850	4,550

Overland Price Increase in April

TOLEDO, March 9—The Willys-Overland Co. has sent out a telegram to all dealers stating that all orders made after March 1 will be shipped and driven away during March if possible. After April 1 prices are scheduled for an increase, although no announcement is made regarding when the new prices go into effect or what the increase will be. C. A. Earl, vice-president of the Willys-Overland Co., has informed representatives of automotive industries that a price increase is certain after that date.

Oakland Raises Prices

PONTIAC, MICH., March 6—The Oakland Motor Car Co. has increased the price of all models \$60, effective at once.

	New	Old
Town car.....	\$2,000	\$1,940
Sedan	1,550	1,490
Coupe	1,550	1,490
Convertible Sedan.....	1,250	1,190
Three-passenger roadster....	1,050	990

King Prices Raised

DETROIT, March 6—The King Motor Car Co. has added \$500 to the price of its touring car, making the price now \$2,150, the old price being \$1,650. The Foursom sport car has been increased to \$2,350 from \$1,700. It is now fitted with wire wheels and cord tires in place of wood wheels and fabric tires. The sedan has been advanced to \$2,950 from \$2,300. The three-passenger roadster has been discontinued.

Jones Prices Increased

WICHITA, KAN., March 11—The factory prices of Jones passenger cars will be increased on March 15 as follows:

Model	New Price	Old Price	Inc.
7-Passenger Touring 26B (Lewis engine).....	1,775	1,675	100
5-Passenger roadster 26A (Lewis engine)	1,775	1,675	100
4-Passenger sport type 26C (Lewis engine)....	1,775	1,675	100
7-Passenger touring 27A (Continental engine)..	1,875	1,675	200
4-Passenger roadster 27A (Continental engine)..	1,875	1,675	200
4-Passenger sport type 27C (Continental engine)	1,875	1,675	200

Sales at Boston Show More than \$10,000,000

3000 Dealers on Hand—Many New Agents Signed Up and New Trucks Introduced

BOSTON, March 9—Manager Chester I. Campbell stated to-night that he believed that the attendance for the show would reach 225,000. This is not a record. A few years ago the total for the week ran close to 240,000. There were 2600 names of dealers handed in this year by the motor companies. But there were only 1800 who went to the management and took up their cards.

But there were close to 3000 dealers on hand, for the Boston agents and branch managers instead of registering many of their outside agents this year had them enrolled as salesmen, giving them the regulation fobs which were passed out to their own men.

Some idea of the sales may be gleaned from a few incidents detailed by dealers here. Manager Stockbridge of the Winston sent the factory man home with 21 orders. Last year he had 13. Mr. Stevens of the National reported 11 this year to four a year ago. Frank E. Wing of the Marmon sold eight cars the first 2 days, three of them being \$5,500 closed bodies. Mr. Rockwell of the Nash said that he had orders enough to keep the factory busy shipping cars for several months. C. S. Henshaw of the Dodge Brothers said that the orders went along in a steady stream with little variation, and the show will add nearly 100 new names to his list. J. W. Maguire of Pierce-Arrow cleaned up all his show cars, seven of them. Prescott Warren of the Stanley said that he found people wanted an excuse to buy his cars, and having seen them among the real advertisers they bought them, some 15 of them. These merely were retail sales, and so the average went along, the lower-priced cars like Studebaker, Olds, Reo, Oldsmobile, etc., running up new records, and the higher priced fellows getting their share. The orders were not in hundreds but thousands.

As for the trucks it was a big dealers' show. A. H. Sowers of the Fulton signed a Bangor agent who ordered 50, and three other agents elsewhere who between them took 50 more. Then he contracted for the entire output of the Amesbury Unit and got dealers enough to take 75 per cent of them within a few months. New trucks were introduced and agents secured. Between the dealers signed up and the retail orders the truck show made a big clean up. It was at least a \$10,000,000 sales show, everything included.

The dealers from all New England—some 3500 of them—learned that they were not selling automobiles and trucks but transportation. It was a new note to them. They learned at the different dinners, and there were many of them, that the day of trying to sell machines

on the basis of the pleasure it gave to ride in them was gone.

They also learned that conditions which arose from the freight embargoes and heatless days were favorable to them. Congestion of freight meant that business men had to have trucks. Breaking down of transportation facilities meant that people would have to use motor cars.

It was impressed upon them that the greatest factor in life in this country is time. It is something that cannot be bought or replaced once it has passed on. And so to utilize it to the utmost to keep abreast of the keen competition motor vehicles are necessary.

The gospel of optimism preached during the week along the lines that to conserve, as some would have us do, meant stagnation had its effect. The dealers talked a new doctrine to their prospects. And this new doctrine was reflected in the sales.

Big and little cars were sold. Trucks were sold. New agents were secured throughout the territory. This was particularly true of the trucks. Dealers were told to tie up with trucks as a side line and they did. There were more trucks displayed at the show and it was not a difficult task to secure agencies.

The best evidence that business is returning to the normal, that the hysteria of pessimism is over, was found in the attendance. While there were fewer people at the show this year, the receipts at the box office were larger.

Dealers this year pruned down their lists of people to those that they knew or thought would do them some good. For example, one dealer went through his list and all users of cars back in 1912 or thereabouts who had been on the list every year were dropped.

Another dealer went over his list, and those that had bought cars, but had never returned to have any service given in the way of overhauling, were omitted. The dealer felt that he had not been supported by these people and so he cut them off.

There was another dealer who had a complimentary list, and on this every year—how they ever got there was an enigma when they were discovered—were the names of the officers of the dealers' association, who thought it was a joke to get tickets from a competitor.

The result was that some 10 per cent of the complimentaries were chopped off. As every dealer has to pay 50 cents for every ticket used that he sends out it meant a real saving, and it brought to the show people who wanted to get cars.

The salesmen had a better opportunity to talk without being jostled out of the way by the curious. And so they sold cars. They learned by talking with the people that the thought of not being able to get cars, and the possible higher prices, were hastening visitors to place orders.

Hudson to Make 15,000 Cars

DETROIT, March 9—The Hudson Motor Car Co. production schedule for this year calls for 15,000 cars.

Dealer Association Names War Committee

Will Co-operate with Government in Fitting Trade and War Work Together

ST. LOUIS, March 11—A War Service Committee for the National Automobile Dealers' Association has been appointed by President Fred W. A. Vesper. It will co-operate with the Government's Commercial Economy Board in harmonizing the activities of the government with those of the dealers of the United States. Various plans are in prospect. The members of the committee are:

F. W. A. Vesper, chairman.
Earl C. Anthony, Los Angeles Motor Car Dealers' Association, Los Angeles.
Charles Collier, Brown County Auto Trades Ass'n, Green Bay, Wis.
A. E. Mitzell, Ohio Auto Trades Ass'n, Canton, Ohio.
A. E. Maltby, Philadelphia Auto Trades Ass'n, Philadelphia, Pa.
F. E. Murphy, Minneapolis Auto Trades Ass'n, Minneapolis, Minn.
George W. Browne, Milwaukee Auto Dealers' Ass'n, Milwaukee, Wis.
Dayton Keith, Chicago Auto Trades Ass'n, Chicago, Ill.
J. H. McAlman, Boston Auto Trades Ass'n, Boston, Mass.
George D. McCutcheon, Atlanta Auto Trades Ass'n, Atlanta, Ga.
O. P. Tyler, Worcester Auto Trades Ass'n, Worcester, Mass.
Fred J. Caley, Cleveland Auto Trades Ass'n, Cleveland, Ohio.
Charles W. Browne, New York Dealers' Ass'n, New York City.
Finley L. MacFarland, Rocky Mountain Automobile Ass'n, Denver, Col.

Limelight for Dodge Dealers

BOSTON, March 6—Governor Samuel W. McCall and members of the Governor's staff, with 250 soldiers from Camp Devens, were guests at the automobile show yesterday afternoon of more than 75 Boston owners of Dodge Brothers automobiles and the automobile company itself. The soldiers were members of the 301st Engineers and Ammunition Train, in charge of Lieut. W. D. June, who came down from Ayer, arriving at the North Station about one o'clock. With them was the 30-piece band of the 301st Ammunition Train. The soldiers will return to Camp Devens this evening.

Ford Sub-Chaser to Be Ready This Summer

WASHINGTON, March 7—The first submarine destroyer built by Henry Ford for the United States Navy will be ready for its trial trip early this summer. Several boats have been contracted for, but they will not be in quantity production until the one now under construction has been tried out.

Use of Tractor Is Increased By Tests

England Finds Demonstrations of Benefit and Plans Several During Coming Season

LONDON, ENGLAND, Feb. 15—An idea of what might be done by dealers in the United States by way of stimulating the use of farm tractors and introducing them to a greater number of communities is given by the action of the Food Production department of England which has started a series of tractor plowing demonstrations which are to be largely competitive sporting affairs. After having tried the experiment in a number of sections, the Food Production Board has laid out a comprehensive plan for more of these demonstrations.

The scheme as now outlined for the entire country consists of a series of sectional and national competitions as follows:

- First for units.
 - Second for counties.
 - Third for the whole of England and Wales.
- Each competition will continue for one month and the dates are as follows:
- First competition begins Feb. 9.
 - Second competition begins March 9.
 - Third competition begins April 6.

This schedule means that there will be three-month competitions for each unit. There will be three for each county and three national ones. This arrangement provides for admission to the competition of additional men and machines that may be added to the nation's agricultural tractor power during the spring plowing season.

The details of the three-fold competition are:

1—For each unit—A distinctive flag to be carried on the tractor will be awarded the tractor team in each unit which plows the greatest number of acres during each period of four weeks. This flag will be presented each month by the tractor representative of the county.

2—For each county—A championship flag will be awarded to the tractor team in each county which plows the greatest number of acres during each period of four weeks. A distinctive badge will be worn by each member of the winning team. The flag and badges will be presented each month by the chairman of the county executive committee.

3—For England and Wales—A championship shield to be carried on the tractor will be awarded to the tractor team which plows the greatest number of acres in England and Wales during each period of four weeks. A small silver replica of this shield will also be given to each member of the winning team. The shield and replicas will be presented personally by the director-general to the winning team, which will be invited to London for the purpose of the presentation.

Each trophy will be held for four weeks only, unless again won by the same team.

The complete scheme of competition not only awards those doing the most plowing but gives a national significance

to the movement which results in increased plowing at a time when a national stimulant is imperative.

1000 Ford Tractors For Michigan

DETROIT, March 11—The State of Michigan has purchased from Henry Ford & Son 1000 Ford tractors for delivery beginning April 1. At the same time through Henry Ford arrangements were started toward the purchase of a large number of plows to be attached to the tractors. These plows are made by the Oliver Plow Co., South Bend, Ind. Ford has personally guaranteed that the State will be able to obtain these plows.

The tractors and plows will be sold to the farmers of the state through the War Preparedness Board, and it is aimed by their use to largely increase in acreage the farms of Michigan for the 1918 crops. The tractors and plows will be under control of the Board at all times, and will be used practically as community implements. The farmer who buys the machinery is expected to plow his neighbor's field, and the State will see that he does so.

This plan has been adopted at the suggestion of Henry Ford himself. In fact it is stated that the sale of tractors and plows hinges upon this agreement. The amount of money involved in the transaction amounts to practically \$830,000. The tractors are to be paid for at the rate of \$750 each, while the plows cost approximately \$100 each. Delivery is promised beginning April 1 at the rate of 25 a day, which will take one-quarter of the output of Henry Ford & Son's factory at that time. It has been further agreed that if the 1000 tractors prove insufficient, Henry Ford & Son will allow the War Board to have another 1000 at the same price, providing their distribution and use are as planned in agreement above mentioned.

The Secretary of the War Board at Lansing is devising a plan for distributing the tractors and plows. This plan contemplates sales through county agents and for cash only, but when a farmer buys the two implements he makes a contract to plow his neighbor's field within a certain radius. This work will be directed by the agents of the War Board, as will the price for which it will be done. In this way the board believes the entire acreage of the State can be plowed.

A meeting was held at the Dearborn plant on March 9 with the members of the State War Board to go over the details. At that time Henry Ford stated that the State must see to it that the tractors and the plows are kept going from spring until fall.

It is aimed that neither the tractor nor the plow will be idle any longer than is possible to regulate intervals of time between its use.

From an acreage standpoint it is believed that the use of these tractors on a community basis will greatly increase the output of the Michigan farms.

With 1000 tractors each able to plow an acre an hour, it would mean the maximum attainable effort of 1000 acres per hour, or 10,000 acres per day.

Car Dealer Is Best for Tractor Service

Wherefore One Tractor Maker Is Placing His Agencies with the Motor Car Men

KANSAS CITY, March 9—"Distribution of tractors must be studied from the standpoint of service to the customer.

"Not one old line implement man in 400 has the equipment, or the tradition, or the inclination to give service."

J. A. Link, branch manager at Wichita, Kan., of the Sandusky Tractor Co., gave the above statement as one reason why he had been placing fourteen agencies with automobile and truck men to one agency of the Sandusky with old line implement men. Link, and indeed other branches of the company, are emphasizing the service feature in this way:

Every purchaser of a tractor gets 50 hours of service free, coupons being supplied redeemable at any Sandusky station. The purpose of the free service is not to help make sales but to get the customer into the habit of keeping his equipment in good shape and educating the dealer himself in giving the service.

It is figured that if the customer will use up his 50 coupons, he will have got the habit of securing repairs and the necessary equipment exactly as needed, not neglecting it until he thinks he can afford it or can spare the time. It is said that the Wichita branch is one of several that has a record of no idle tractors in the district throughout.

Formerly the Sandusky branches encouraged dealers' service on any tractor, and their traveling service men were willing to go out of their way to help a farmer get his tractor into use whatever manufacturer might have supplied the implement. At present, however, the company is centering its service efforts on its own tractor. As one Sandusky man said:

"Competition is getting so strong that a service man who does volunteer and get a farmer out of trouble on a tractor not of his own company is likely to be blamed when such tractor goes bad again, and the blame is reflected back again onto the tractor company that the service man represented."

In Link's district, however, the Sandusky dealers are equipped to give service. They give it there on any tractor when asked, giving preference in time, of course, to Sandusky tractors. There is good co-operation between Sandusky dealers and service men, and the garage men and agents for other tractors in the territory.

To Organize in Cincinnati

COLUMBUS, March 9—A meeting of the Cincinnati trade will be held at the Gibson House, Cincinnati, Monday, March 18, for the purpose of forming a local association, which will affiliate with the Ohio Automobile Trade Association.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Crosby White, formerly associated with A. J. Picard & Co., has been appointed traveling sales manager of J. H. Faw, Inc., New York.

F. J. McDonald has been appointed Western sales manager of the Canadian Briscoe Motor Co., with headquarters in Winnipeg, Man.

John Younger, formerly truck engineer for Pierce-Arrow Motor Co. and now with the Motor Transport Section of the Quartermaster Corps under Christian Girl, chairman, has been appointed Supervisor of Engineering. Jack Utz, whom he succeeds, has taken a wider position as Advisory Engineer of the section.

Harry W. Thayer, president Western Electric Co., has been appointed the third civilian member of the Aircraft Production Board.

G. F. Loud, formerly purchasing agent of the Candler Radiator Co., Detroit, has resigned and is now located in Lockport, N. Y.

E. R. Jacobi has resigned as chief inspector of the Reo Motor Car Co., Lansing, to become associated with the Mitchell Motors Co., Inc., Racine.

C. W. Inches has resigned as assistant purchasing agent of the Briscoe Motor Corp., Jackson, to become purchasing agent of the Trego Motors Corp., New Haven, Conn.

H. O. Bernhardt, formerly production manager of the Harroun Motors Corp., Detroit, is now a major of the central bureau supervision section and is engaged on an assignment connected with the production of a variety of government orders.

Joseph W. Gardham, former technical representative of the Chalmers Motor Co., Detroit, is now in charge of tests of motor trucks for the Millitor Corp. of Jersey City, N. J.

William H. Reese has resigned the secretaryship of the Convention and Good Roads Bureau of the Milwaukee Association of Commerce. He will become advertising manager of the Sterling Motor Truck Co., Milwaukee.

R. W. Mickam, formerly advertising manager of the Liberty Motor Car Co., and more recently head of the advertising department of the Ford Motor Co. of Canada, has joined the Carl M. Green Co., advertising agency, Chicago.

Walter P. Coghlan, secretary of the Klaxon Co., Newark, who at the outbreak of the war joined the United States Navy, has been honorably discharged from the service owing to an injury to his back and has resumed his duties as secretary and sales manager of the company.

J. F. Bowman has been elected vice-president and general manager of the Acason Motor Truck Co. He was formerly vice-president and sales director of the company. **H. A. Conlon** has been promoted from assistant sales manager of the Acason company to sales manager. He was formerly assistant sales manager of the Federal company.

John S. Collins has resigned as sales manager of the Chevrolet Motor Co. He will be succeeded by B. J. MacMullen, who was sales manager of the Chevrolet Motor Co. of Texas, with headquarters at Fort Worth.

H. P. Harding, formerly president and general manager of the Wagner Axle Co., Anderson, has resigned, and **G. D. Yaeger** has been elected general manager, in addition to secretary and treasurer.

Loyall A. Osborne, New York, vice-president of the Westinghouse Electric & Mfg. Co., and chairman of the executive committee of the National Industrial Conference Board, has been appointed by the Secretary of Labor a member of a committee on industrial peace during the war.

Earl Cooper, who has practically given up racing for the coming year on account of the decision of the American Automobile Association to sanction no races during the war, will devote the greater part of his time to an agency for Firestone tires in Sacramento, Cal.

Daniel Willard was re-elected chairman of the advisory commission of the Council of National Defense at the annual meeting of the advisory commission yesterday.

G. G. Germaine has been appointed district representative in New England for the Standard Parts Co., with headquarters in Boston. He was formerly associated with the Kawnee Mfg. Co.

John W. Kemp, Hartford, Conn., has resigned as sales manager of The Colonial Automobile Co., Studebaker representative. For the present he intends to rest up and will later in the season resume business, probably in the tire field.

W. F. Thompson, formerly assistant superintendent, has resigned to become engineer of the airplane division of the J. C. Widman & Co., Detroit, which has entered into airplane construction work.

Beckwith Haven, formerly in the export department of the Denby Motor Truck Co., Detroit, has accepted a commission as lieutenant in the navy. He recently returned from a year's trip through Australia, New Zealand, Dutch East Indies, Philippines and Japan.

Fred M. Chaffee, Detroit, will open a sales agency for the Highway tractor manufactured in Indianapolis. Chaffee formerly represented the Saxon company in the Atlanta territory, and was also connected in the past with the Geo. W. Franklin Co. of Detroit, and the Dort and Regal companies.

R. H. Patten and **W. G. Sale** have taken sales routes in the eastern territory after two months' training in the plant of the McQuay-Norris Mfg. Co.

P. D. Barbour has been appointed sales

manager for the One-Wheel Truck Co., St. Louis.

F. J. Bury, service expert of the Packard Motor Car Co., Detroit, who has been connected with the St. Louis company handling the Packard for some time, has returned to resume the work at the plant.

G. A. Freeman has resigned as vice-president of the J. C. Wilson Co., Detroit, to become associated with the C. R. Wilson Body Co. in the airplane body division. Freeman has been succeeded by Andrew Lehr, formerly connected with the Studebaker and General Motors interests.

Clarence S. Walker has resigned as patent counsel of the Packard Motor Car Co., to become associated in the same capacity with the Wire Wheel Corp. of America, Buffalo. He was for 7 years assistant examiner in the United States patent office at Washington, previous to his connection with the Packard company.

C. E. Lindsey, former manager of the Windsor branch of the Swedish Crucible Steel Co., succeeds F. W. Prothero as sales manager of the Swedish Crucible Steel Co., Detroit, makers of the Olson truck unit.

America Building "Super" Tanks

WASHINGTON, March 11—An official report states that American super-tanks now under construction are greater in power and destructive force than any British or French tanks. The report also states that thousands of small tanks able to travel fifteen miles an hour are being made by the Ford Motor Co. These will be steered zig-zag courses to escape gun fire and will carry guns on the rear. The super-tanks will withstand the fire of small artillery which the Germans use and which damage the French and English tanks. While gross tonnage of the big tanks being made here exceeds the English tanks by only two and eight-tenths per cent, our tanks have engines three times more powerful and in addition to the crew can carry a force of twenty men who will do trench work. The super-tanks are said to be able to span 10 ft. trenches. Armament will consist of small cannon and machine guns. A conning tower will permit machine guns to shoot in any direction. Owing to the great weight the tanks will travel a maximum speed of 5 miles per hour.

Motor Securities Quotations

	Bid	Asked		Bid	Asked
*Ajax Rubber Co.	51	54	*Lee Rubber & Tire Corp.	14	16
*J. I. Case T. M. Co., pfd.	84	85	*Maxwell Motor Co., Inc., com.	29	30
Chalmers Motor Co., com.	4	6	*Maxwell Motor Co., Inc., 1st pfd.	58	61
Chalmers Motor Co., pfd.	30	40	*Maxwell Motor Co., Inc., 2nd pfd.	22	24
*Chandler Motor Co.	87	88½	Miller Rubber Co., com.	133	137
Chevrolet Motor Co.	120	123	Miller Rubber Co., pfd.	94	97
*Fisher Body Corp., com.	30	35	Packard Motor Car Co., com.	95	100
*Fisher Body Corp., pfd.	80	87	Packard Motor Car Co., pfd.	90	93
Flisk Rubber Co., com.	50	53	Paige-Detroit Motor Car Co.	18	20
Flisk Rubber Co., 1st pfd.	98	103	Peerless Truck & Motor Corp.	16½	17½
Flisk Rubber Co., 2nd pfd.	70	75	Portage Rubber Co., com.	110	112
Firestone Tire & Rub. Co., com.	96	98	Reo Motor Car Co.	17	19
Firestone Tire & Rub. Co., pfd.	98	99	*Saxon Motor Car Corp.	8½	10
*General Motors Co., com.	124½	126	Standard Motor Construction Co.	11	12
*General Motors Co., pfd.	81	83	Standard Parts	71	74
*B. F. Goodrich Co., com.	44	45	*Stewart-Warner Speed. Corp.	55	56
*B. F. Goodrich Co., pfd.	94	100	*Studebaker Corp., com.	46	47
Goodyear Tire & Rub. Co., com.	139	142	*Studebaker Corp., pfd.	91	94
Goodyear Tire & Rub. Co., pfd.	99	100	Swirehart Tire & Rubber Co.		35
Grant Motor Car Corp.	2	3	United Motors Corp.	26½	27
Hupp Motor Car Corp., com.	3	3½	*U. S. Rubber Co., com.	55½	57
Hupp Motor Car Corp., pfd.	78	83	*U. S. Rubber Co., pfd.	100	102
International Motor Co., com.	16	20	*White Motor Co.	44	46
International Motor Co., 1st pfd.	40	60	*Willys-Overland Co., com.	18	19
International Motor Co., 2nd pfd.	12	22	*Willys-Overland Co., pfd.	80	82
*Kelly-Springfield Tire Co., com.	45	46			
*Kelly-Springfield Tire Co., 1st pfd.	75	85			

*At close March 9, 1918. Listed N. Y. Stock Exchange. †Par value \$10 a share.

A. A. A. Contest Board Again Controls Races

Government Has No Power to Stop This Sport—Status of Races Same as Last November

NEW YORK, March 9—The Contest Board of the American Automobile Association has again taken hold of motor car contests and will immediately resume its control of contests, as it has done for years past.

In November the Contest Board decided not to sanction any more contests during the period of war exigency, due to the insistent demands of the government for skilled mechanics well qualified as motor experts for aviation and other services. The action at that time was taken because of an official letter from the government on the subject.

It has developed that the government department has not the power to stop the sport, as was anticipated, although such power may be forthcoming in the future. It was rumored that gasoline would not be allowed for racing purposes, but the Fuel Administration has no power to enforce any such rule were it promulgated. It was also rumored the Railroad Administrator would not allow racing motor cars to be shipped on railroads, but even that action would not stop racing, as the cars could be driven overland from one speedway to another.

Demand Prompted Action

The present action of the Contest Board in again taking up the control and sanctioning of races came from race promoters who asked for such protection. Some of the leading promoters soon realized how valuable and necessary it is to have an impartial controlling body such as the Contest Board. It is a great protection to the promoter both as regards his arrangements with drivers and with entrants. As a result of this as well as because of the Washington situation it was voted at a meeting of the Contest Board held to-day to immediately resume control. This means that everything is back just where it was previous to the action taken last November, when it was decided not to sanction contests during the war period.

Already a complete schedule of races for several speedways has been prepared by the speedway interests, and these will be sanctioned and handled under the regular rules. The Contest Board offices have been reopened in the Bankers Trust Building, corner of Fifth Avenue and Forty-second Street, and Chairman Richard Kennerdell is in charge, with the same board assisting him as formerly.

Preparing Schedules

Wm. L. Wellman, race promoter, has a complete schedule of races, extending from early in May until October, and embracing such speedways as Sheepshead Bay, Chicago, Uniontown, Providence, Cincinnati and perhaps Phila-

delphia. The schedule is not complete, but embraces the following definite dates:

Uniontown, Pa.	May 16
New York	May 30
Uniontown	Aug. 3
Providence	Aug. 17
New York	Aug. 17
Uniontown	Sept. 2
New York	Sept. 21

Other speedways with which arrangements are not yet completed are expected to take in other important dates not included in this schedule.

There seems to be nothing definite with regard to the Philadelphia speedway, and it is questionable if it will be completed in time for any racing. Lumber that was intended for the construction of it has been taken by the government, and to date none of the lumber construction work has been started. The necessary grading for the construction work has largely been completed.

The three big meetings selected for the summer are May 30 in New York, Aug. 17 in New York and Sept. 21. The Harkness cup race on Sept. 21 will be the closing event of the year. New York also has the Decoration Day race, which heretofore has gone to Indianapolis.

There will not be any racing on the pioneer Indianapolis speedway, as Carl G. Fisher, president, as well as James Allison, F. H. Wheeler and A. C. Newby, the stockholders of it, announced last year that they were out of racing for the period of the war, and that none of their racing cars would enter in any contests. The only contests Indianapolis would stage would be benefit races, where all of the receipts would go for war benefits.

Dinners for Jobbers' Men

BOSTON, March 9—By way of assisting jobbers' salesmen with their work of distributing its product, the Champion Spark Plug Co., Toledo, held a series of dinner conferences during the week of the Boston show. Two conferences were held each day, one in the morning between 12.30 and 2 and the other in the evening between 6 and 8. At each of the conferences the salesmen of one jobber concern were invited to attend. Thus, during the week, the sales forces of twelve different concerns were given the benefits of the sales talks that were made.

One part of the program was the display of a motion picture film showing the production of Champion plugs from clay to the finished product. The various operations were explained in detail by H. L. Corey, who also gave talks on the advertising which the company is now using to assist in the distribution of its product. George Mason exhibited and displayed the Champion sectional window display which may be made to fit any window, regardless of size. The meetings were all held at the Copley Plaza.

J. H. Faw Moves Next Door

NEW YORK, March 9—J. H. Faw, Inc., manufacturer's representative, is moving from 41 Warren Street to larger quarters at 37 Warren Street.

New Arrangement in Industry's War Work

Automobile Industries Committee Terminates Its Work—Chal- mers to Aid N.A.C.C.

NEW YORK CITY, March 8—The Automobile Industries Committee, so far as the National Automobile Chamber of Commerce, Inc., is concerned, has ceased to be a representative of the chamber, and Hugh Chalmers, the N. A. C. C. representative on the committee, has resigned. For some months Chalmers is going to give his services to the N. A. C. C. in connection with the Washington work, as he is very familiar with Government matters, due to his position on the Automobile Industries Committee.

The N. A. C. C. for several months has been maintaining its own Washington office under the direct management of Alfred Reeves, its general manager, and this office will, it is understood, continue to be the point of contact between the Chamber and the Government.

The Automobile Industries Committee formed last November consisted of A. W. Copland, representing the Motor & Accessory Manufacturers Assn.; Hugh Chalmers, representing the N. A. C. C., and J. R. Lee, representing the Ford company. Lee has withdrawn from the committee, so that there remains but Chairman Copland representing the accessory industry. It is understood that a meeting of the Motor & Accessory Manufacturers will be held soon at which its attitude with regard to the committee will be taken up.

Since its inception the Automobile Industries Committee has accomplished much good. It was appointed at the time of the chrome nickel crisis when shipments of this metal to the automobile industry were being stopped.

The attitude of the Government changed from considering cars non-essentials up to that of considering the passenger car a public utility as it was considered during the coalless days in January.

The committee threw itself into the breach at the critical period in November and warded off any precipitate action.

Since the appointment of the committee 472 different jobs in the way of manufacture of war orders have been placed with the manufacturers of automobiles, trucks and accessories and the committee devoted much of its time to the work of bringing Government departments and the automobile industry together. This work approximates \$300,000,000 in Government contracts, this figure not including Ford contracts, which are said to range between \$75,000,000 and \$100,000,000.

The Automobile Industries Committee did good service for the navy in placing \$750,000 worth of contracts for small parts, which otherwise would have been difficult to secure.

Illinois Backs \$60,000,000 Road Project

PEORIA, ILL., March 8—When the entire motor industry of a state and the motorists themselves get behind a plan by which they must finance a \$60,000,000 road-building project, there must be either a majority of far sighted people having to do with automobiles in that state or else the roads must be mighty bad. Both of these things are true in Illinois. The automobile world in the state backed a proposition to double the license fees for motor vehicles so that from these fees alone roads could be built without one cent of expense to the non-motoring taxpayers of the state. They backed it so successfully that it was passed, carrying with it an enabling act to permit the people of the state to vote next November on the issuance of \$60,000,000 in bonds, principal and interest of which are to be paid by the registration fees of motor vehicles. Now

they are trying to convince the people of the state to go ahead and authorize the bonds for the road improvement they will pay for. Illinois is not only one of the richest of the central states, but is notoriously one of the most backward in road matters. The very soil which makes the state first in the value of its products, makes good natural roads impossible. In improved road mileage it ranks twenty-third among the states in spite of the fact that the average value of the farm land is \$280 per acre.

This money will be spent on five great highways which have been selected by the state highway engineers in conjunction with those of the federal highway bureau. These highways are: Lincoln highway, Dixie highway, National Trail-East St. Louis to Indiana State Line, Ivy Way-Chicago, Peoria to Springfield, Springfield to East St. Louis, Chicago to Wisconsin state line.

Connecticut Business Booming

HARTFORD, CONN., March 7—Business is opening up well among the local dealers. There is a marked change in the outlook. Every indication now points to a lively spring. The annual automobile show which was to have been held the week of Feb. 23 has been put over to the week of March 30 to April 6. Among other features there will be a special truck section in the basement this year.

Salesmen throughout the city are in much brighter mood than they have been all winter. Orders are coming in which proves that people are in the mood to buy cars.

The accessory trade is picking up, especially tires. The Universal Auto Co., one of the largest concerns in the east, recently added the Ajax. The tire repairmen report more business in the past week than for some time.

Most of the dealers are making arrangements to get cars over the road from the factories.

Snow Cost Connecticut \$37,000

HARTFORD, CONN., March 9—Connecticut expended \$37,000 this season in keeping the main roads cleared of snow, which is in accordance with the provisions of the new State law.

Los Angeles Allows Poorer Gas

LOS ANGELES, March 10—After prolonged and acrimonious debate the City Council has adopted an ordinance to permit the sale of gasoline of lower standard than that heretofore required. This city has maintained the highest test standard in the country for a number of years and as a consequence it has been impossible for producers to dispose of synthetic gasoline here at the seat of its manufacture. The modified ordinance will now bestow this privilege. The Motor Car

Dealers' Association lined up with the gasoline manufacturers in favoring the revised ordinance.

Dodge Chassis for Army

DETROIT, March 10—Dodge Brothers report that they have 4616 chassis in government service, distributed among the Signal Corps and the Ordnance and Quartermaster Departments. Those in the Signal Corps are constructed with special truck bodies for carrying telephone and telegraph apparatus and laying lines of communicating systems. The Quartermaster Department has four Dodge chassis fitted with a 2-ton Smith Universal Form-A-Truck attachment, and can be used with either creeper-type or two-wheel rear drive. So far only four of these trucks have been constructed, and it is expected that these will be driven overland to Detroit shortly.

Motor Freight Line in Utah

SALT LAKE CITY, UTAH, March 9—Operation of a motor freight service between this city and Ogden will be started at once by the Motor Freight Service Co., Salt Lake City. The state highway will be used, and the rates charged will be the same as those of the railroad, according to western classification.

Bloomington Wants More for Gas

BLOOMINGTON, ILL., March 7—Members of the Bloomington Automobile Trade Association are agitating a movement to increase the price of gasoline. Most of the dealers operate filling stations in front of their places of business which are supplied by the Standard Oil Co. The latter charges the dealers 20 cents and arbitrarily fixes the retail price

at 21 cents. This profit of 5 per cent is too small, according to the dealers, and this week they notified the Standard Oil Company that unless they were permitted to charge 22 cents, a profit of 10 per cent, the contracts would be cancelled.

Reo Completes First Caterpillar

LANSING, MICH., March 8—The Reo Motor Car Co. has completed the first of the Holt caterpillar tractors, in accordance with a government order recently received. The order calls for 3000, and the sample tractors which have just been completed have been satisfactorily passed by Lieutenant H. C. Shafer of the Ordnance Department, who is in charge of inspection in Lansing.

Plans Detroit-Savannah Driveaway

SAVANNAH, GA., March 9—So congested have traffic conditions as regards the transportation of motor cars from the North to the South become that C. E. Vinson, head of the Savannah Automobile Dealers' Association and president of the C. E. Vinson Motor Co., is advertising for fifteen men to go with him from Savannah to Detroit and bring back as many cars. The embargo on the shipments of motor cars is playing havoc with many dealers who are depending on railroad transportation.

To Decrease Airplane Accidents

WASHINGTON, March 7—To eliminate the many accidents at flying fields, the Aircraft Production Board has evolved a system whereby pupils will fly in different directions from the camps to points 10 miles distant and thus avoid collision.

Boosts Return Load Plan

WASHINGTON, D. C., March 9—The Chamber of Commerce of the United States is issuing a bulletin to all of the Boards of Commerce affiliated with it in the country calling attention to the return load plan of motor truck transportation, such as the Connecticut system which was described in the Feb. 27 issue of Motor World.

House Organ for Niehoff

CHICAGO, March 9—Paul G. Niehoff & Co. have issued No. 1 of Vol. 1 of "The Saturday Evening Cash Register" which is this company's maiden attempt at a house organ. The booklet is a very clever imitation of the Saturday Evening Post even to typography and illustrations. It is intended as an educating and sales-stimulating propaganda.

Stays Chicago Fender Act

CHICAGO, March 10—An order temporarily restraining the enforcement of the motor truck fender ordinance in this city was issued to-day by Judge F. A. Smith. This ordinance, requiring that all motor trucks of greater than 1500 lbs. carrying capacity be equipped with fenders, was to have been effective March 1. It is hoped that the injunction will remain

in force until the suit of the Chicago Motor Truck Owners Assn. against the city of Chicago is decided. This case is now pending in the master of chancery courts. A decision is expected to be rendered within the next few days, which will determine whether or not the ordinance is valid.

Hartford-Waterbury Truck Line

HARTFORD, CONN., March 8—The Whaley Motor Co., Maxwell distributor, has started a freight line between Hartford and Waterbury. The cars leave Hartford at 10.30 in the morning and return from Waterbury at 3.30 in the afternoon. J. H. Whaley, proprietor of the company, says that he has all the work he can handle.

Motor Mart Takes Holley Agency

DETROIT, March 7—The Motor Mart has made arrangements with the Holley Kerosene Carburetor Co. to take over the exclusive service agency for its kerosene carburetor. There are approximately 7000 owners of Ford cars in this vicinity, and it is planned to give them service without charge.

Day-Elders Making New Truck

NEWARK, N. J., March 7—The Day-Elders Motors Corp. has brought out a new 5-ton worm-driven truck, with a chassis capacity, including the body, of 14,000 lbs. The wheelbase will be either 150 or 170 in., and the truck is assembled from standard parts, including a Buda 4½ x 6-in. L-head engine, a 4-speed

LOS ANGELES, March 8—Rain fell in Southern California during the latter part of February for the first time this season. To this section of the country it means everything and to the motor car industry it will mean the sale of an additional large number of cars. The season's precipitation to date is 11 in. less than normal. The situation had become so serious that live stock were dying in the fields for lack of grass, it being impractical to get hay and other feeds to them in the mountain ranges.

Dealers throughout the territory lost

thousands of dollars in sales due to the cancellation of orders, the reason being that intending buyers were compelled to expend the money they intended putting into motor vehicles for irrigation. The tractor market was affected seriously. Ten months without rain and a summer unusually warm had made the adobe soil impossible for tillage in some localities without resort to dynamite. Thousands of acres of land devoted to sugar beet culture could not be plowed. Since the rain, however, abundant crops are assured and planting will be above normal to meet increased demands.

Brown-Lipe gearbox, a Savage Arms pressed steel frame 9 in. deep, and Sheldon front and rear axles. The springs are 3 in. wide in front and 48 in. long, and rear springs are 4 in. wide and 60 in. long. The truck has Ross steering gear and solid front tires 36 x 5 and rear 40 x 6 dual tires. The engine is fed by gravity to a Zenith hot-air-jacket carburetor.

Raleigh Show March 13-16

GREENSBORO, N. C., March 7—Plans have been perfected for Raleigh's second automobile show, to be held March 13, 14, 15 and 16. Every dealer in Raleigh and many from over the state will be represented, and over thirty-five different makes of cars will be shown. Many new cars will be shown.

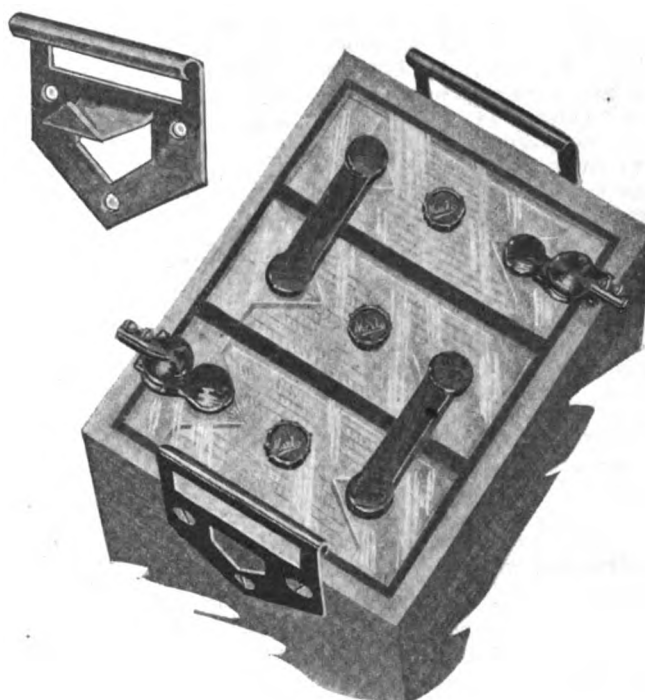
Record Size Chicago Accessory Show

CHICAGO, March 8—The third annual motor car accessory show to be staged March 16-23 by Rothschild & Co., Chicago, is to have a war time spirit. It is to be called the Conservation Accessory Show and except for being much larger, will follow about the same general lines as last year. Representation of accessory manufacturers is quite complete and very attractive exhibits are being constructed. The day before the opening has been set aside especially for dealers and garage-men.

There will be a complete miniature oil city, showing pumps, engines, etc., in operation. Lubricating engineers will explain the process. There also will be a complete tire building section, wherein everything pertaining to tires with the

New Marko Battery Has Glass Covers

Paul M. Marko & Co., Brooklyn, N. Y., have developed a storage battery which has a number of features which are quite unusual. Instead of the usual opaque sealing compound, the battery is equipped with individual glass covers over the cells, the covers being sealed in place. They permit inspection of the height of the solution and, to a certain extent, of the condition of the plates. The covers are molded glass of very heavy construction and are practically unbreakable. The vent plugs have no screw threads and are merely rubber stoppers. Another unusual feature is that the positive and negative connectors are arranged to fasten to the battery case where they are firmly supported. Thus, movement of the cable cannot loosen the connector from the plate nor harm the glass cover. The handles of the battery are held in place by a pressed out lug which is fitted through a slot in the battery box and then clinched over. Screws are not necessary to hold the handles and are used largely for appearance. Internally, the battery is the same as previous Marko batteries and is made in sizes for all cars and trucks.



exception of vulcanizing is to be shown. Inner tube construction will be shown in another exhibit. A special department is to be devoted to Ford car accessories, including spare parts of engine, axles, etc., in fact a complete car should be assembled from the parts displayed. This year's exhibit will cover 19,200 sq. ft., nearly twice that of a year ago.

Langley Heads Dallas Dealers

DALLAS, TEX., March 8—The annual meeting of the members of the Dallas Automobile Trades Assn. was held last week. Officers and directors for another year were elected as follows: President, W. G. Langley, Franklin Co.; first vice-president, Don F. Safford, Overland Co.; second vice-president, W. H. Noble, Texas Co.; third vice-president, H. J. Cohn, Sonneborn Bros. Co.; secretary, Geo. H. Newkirk, Trinity Motor Co.; treasurer, C. L. Zutavern, Texas Oakland Co. Directors named were: J. W. Atwood, Buick Co.; R. C. Langley, Dallas Buick Co.; S. G. Davis, Oldsmobile Co., and R. L. Cameron, R. L. Cameron Automobile Co.

Dallas Plans Closed Car Show

DALLAS, TEX., March 7—Automobile dealers at Dallas are planning for a closed car show this spring. No dates, however, have been agreed upon. It will likely be in April.

W. W. Parker Dies

DALLAS, TEX., March 10—Capt. William W. Parker a member of the firm of the Texas Motor Car Assn., died at his home in this city last week. He was well known among automobile men of the Southwest.

New Studebakers in Production

DETROIT, March 8—It is expected that the Studebaker Corp. will be operating full blast in the course of 30 days, in which time it expects to produce 1000 cars. The cars entered in the Chicago Speedway test completed 30,000 miles. This test was made to obtain information for their engineering department. Three cars were used, two six-cylinder and the other a four.

Saxon Production in New Plant

DETROIT, March 8—The Saxon Motor Car Corporation expects to start production in its new plant within 60 days. There is great difficulty with freight transportation. The company is unable to enter Canada at all and is holding a shipment of 50 cars for Canadian points.

Scripps Shipping New Models

DETROIT, March 8—The Scripps-Booth Corporation last week made its first shipment of the new model car. Four carloads consisting of 20 cars were sent to Pittsburgh and eastern points. It is planned by the company to produce 12,000 cars this year.

Cleveland Commercial Car Dealers Organize

Need of Co-operation Among Truck Men Never Greater—5 Men to Draft Constitution

CLEVELAND, O., March 7—An organization to be known as the Commercial Car Dealers' Association of Cleveland was formed here last week. H. L. Schneider, manager of the Republic Motor Sales Co., who presided at the first meeting has appointed a committee of five men to draft a constitution. Expressions from the truck men as to the desirability of the association indicated that the need of co-operation among dealers was never more evident. The new importance which the truck has gained in its work of aiding to relieve the railroad freight congestion is shown by the formation of a motor truck committee of the National Automobile Chamber of Commerce.

This local organization will foster the work of the national committee. The formation of this committee is a response to suggestions made at a recent convention of truck manufacturers by Christian Girl, who is director of production of the government's military truck division; Hugh Chalmers, chairman of the automobile industries committee, and by Roy D. Chapin, chairman of the highways committee and president of the Hudson Motor Car Co. This week will see the local association completely organized.

To Make Electric Industrial Trucks

LOS ANGELES, March 8—The Electro Industrial Tractor Co. has been organized here with Richard Norton, a former member of the County Board of Supervisors, as president. Rights have been purchased to manufacture under the patents of J. E. Haschke, the inventor, a small, electrically operated truck, designed for handling baggage or freight in warehouses, steamship or railroad freight terminals. The plant and equipment of the Vernon Manufacturing Co. have been purchased. The company is incorporated for \$50,000.

Bearings Service Co. to Move

DETROIT, March 9—The Bearings Service Co. will move soon into new and larger offices at Cass and Willis Avenues. The Detroit service branch of the company will be located in the same building.

New Model Holley Kerosene Carburetor

DETROIT, March 8—The Holley Kerosene Carburetor Co. is planning to double its production by July. Many manufacturers are now testing a new model carburetor with a view to using it in testing departments. If it is adopted by manufacturers, it is claimed that a saving of \$50,000 annually will be made. Up-

ward of \$120,000 a year is now spent by manufacturers in using gasoline for testing purposes. This new model will sell for a lower price.

New Home for Standard Parts

CLEVELAND, March 8—The Standard Parts Co. will soon have a new home. It has leased the fourth, fifth and sixth floors of a new building to be erected on the southeast corner of Walnut Avenue N. E. and E. 11th Street which will be known as the Standard Parts building. The structure will be 99 x 123 feet and cost \$300,000.

Higrade Starts Production

HARBOR SPRINGS, MICH., March 9—The Higrade Motors Co. is just about to get into production. The Higrade company will start on a preliminary schedule of 25 cars, for which the materials are now at hand. The materials for another 100 cars are practically all in and indications are that production of from 20 to 25 of the light trucks weekly will soon be made. According to present indications this production will start about March 1.

Chandler to Make Tractors for Government

DETROIT, March 9—The Chandler Motor Car Co. has received a large contract for the manufacture of tractors for the government. It is estimated that the contract amounts to \$10,000,000 or more and it is understood that the tractor will be a heavy duty type to be furnished to the Allies by the United States. A large addition is to be made to the present plant and it is expected that the filling of the contract will require several years. At the same time work has been started on the million dollar factory building for the Cleveland Tractor Co. and it is expected that another tractor concern headed by George T. Comey, with whom are associated J. J. Tracey as chief engineer and Harry L. Lance as general manager, will acquire a plant in Cleveland within a few days. It will manufacture the J. T. creeper type tractor.

Kissel Builds Plants for War Work

HARTFORD, WIS., March 10—The Kissel Motor Car Co., Hartford, Wis., which recently was awarded a large contract for military trucks for the Government, has awarded contracts for the erection of two factory additions, one 40 x 100 ft. and the other 40 x 200 ft. in size, to provide additional machine shop, assembling and storage facilities required to handle the contract. Work already is under way, and it is hoped to have the buildings ready for occupancy about April 15. Much new machinery and equipment are being purchased. As already noted, the Falls Motors Corp., Sheboygan Falls, Wis., is working on an order for 2000 motors to be supplied to the Kissel company for the execution of its contract.

Over the Top for Indianapolis

So Great Was the Interest That a Day
Had to Be Added—Tractors on View

INDIANAPOLIS, March 9—The seventeenth annual automobile show of the Indianapolis Automobile Trade Association, which was held Feb. 25 to March 3, went over the top to success that far exceeded the most optimistic hopes of the trade despite inclement weather which has attended the motor car shows in this city for the last eight years. The show was such a success that it was decided to continue it one day more, the proceeds being turned over to the Indianapolis chapter of the American Red Cross.

The show was held in the new four-story building of the Diamond Chain & Mfg. Co. More than 48,000 ft. of floor space was used in the display of passenger cars, motor trucks, tractors and accessories, as compared with 42,000 sq. ft. used in the show last year.

258 Exhibits

There were 258 displays, thirty-eight firms showing passenger vehicles, twenty organizations showing trucks and eleven firms exhibiting tractors for the rural visitors who attended the show from all parts of the state. Fifty-five accessory dealers who had displays presented what is said to have been one of the greatest accessory exhibits ever seen in this country.

One of the unusual features was the indoor moving picture show on the third floor of the building. Thirteen reels of film portrayed the manufacture and use of passenger cars, motor trucks, tractors and automobile tires. In addition to this two reels of film showed the construction of a modern rural roadbed. The feature of the opening night was the unveiling of a gigantic service flag containing 936 stars, each star representing some Indianapolis automobile man now in the United States service. Nearly every exhibit in the show displayed an American flag.

Cars and Trucks For Farmers

Nowhere in the country is the automobile used for more practical purposes than in Indiana. The good roads of the state permit the farmer to utilize to a great advantage the motor truck. The trade believes that the farmer is realizing the adaptability of the motor truck and will use the truck as a medium of transportation more this year than ever before.

Should the present traffic congestion on the railroads continue much longer, one dealer predicted the farmer would buy all the trucks the truck manufacturers can produce. Dealers in trucks in some of the smaller towns throughout the state have such confidence in the present demand for trucks that they increased their orders during the Indianapolis show. Throughout the state, and especially in Indianapolis, the business

firms are using the motor truck more generally as a delivery medium.

Indiana dealers are fortunate in the fact that the income of the people is derived from a variety of sources. Industrial pursuits contribute largely to the resources of the people, and now that the industrials are beginning to feel the prosperity incident to large war orders, higher wages are being paid than ever before. Men representing different classes of labor who in the past have not been in a position to buy passenger cars are in the market this year.

Indiana is a wealthy agricultural state, and the farmer has been a motor car convert for several years. The people in the agricultural districts are more prosperous at this time than ever before, and the attendance at the shows proved beyond doubt that they are taking great interest in the new car market.

Any doubts as to the success of the show were dispelled on the second day, when it became evident that despite the bad weather the exhibit was to be well attended. Interurban cars from all parts of Indiana brought a stream of show visitors to Indiana. Farmers showed deep interest in the tractor exhibit, and dealers were frank in expressing fears that they will be unable to supply the demand for farm tractors in Indiana this year.

239 Dealers on One Day

Dealers' day was observed on Tuesday, Feb. 26. A total of 239 dealers, of whom only seven were from Indianapolis, were registered at the entrance of the building by noon of that day. Club night was observed Thursday evening, and the members of all business and social clubs of the city were extended a special invitation to attend.

Accessory dealers were delighted with results. A large block of space was turned over to the use of the fifty-five accessory firms. The accessory departments of previous shows have been neglected, but the accessory display this year was one of the centers of interest.

The belief was expressed quite generally by accessory dealers that the coming summer will bring them heavy business. The inability of the motor car trade to supply the public with all the new cars that may be required is expected to create a better demand for accessories from the persons who are unable to buy new cars.

Revere Creates Favorable Impression

A feature of the show which was of interest to the automobile trade was the display of the Revere Motor Co., Logansport, Ind., which conducted its premiere display at the Indianapolis show. The Revere is the product of the well-known racing trio composed of Gil Anderson, Tom Rooney and Adolph Munsen. The

car is equipped with a four-cylinder Duesenberg motor, which the manufacturers claim is capable of developing a speed of 85 miles an hour. The car is built on low racy lines and is of substantial construction. The Revere created a very favorable impression.

John Orman, a veteran show manager, was in charge of the show. The members of the Indianapolis Automobile Trade Association who served on the show committee were R. V. Law, Indianapolis Hudson distributor; Joseph M. Block, general manager of the Gibson Co.; F. Ellis Hunter, secretary-treasurer of the Fisher Auto Co., and Alvin H. Smith, manager of the Indianapolis branch factory of the Ford Motor Co.

The Man Who Was a Slacker

(Continued from page 17)

You've gone out and hustled a little bit at times and got a few sales, but this year you've got to do more than that. You've got to have new and entirely different sales plans and they must be more intensive.

"Are you capable of putting this thing over yourself—with my assistance—or are you going to lie down on the job and let yourself be weeded out? For years we have all talked about the time that was coming when selling would be more intensive, and of the survival of the fittest, and now almost over night the thing has dropped down on us. Some of these people who aren't able to keep up with the parade are going to find themselves sitting by the roadside waiting for jobs.

"Miller, you've got to do certain things that you never did before. One thing you've got to do is clean up your place of business, another thing you've got to do is some real intensive sales work with form letters, advertising and a regular prospect list.

"You've got to sell trucks, and you've got to sell our trailers. In a few days I'll have a tractor agency and I think we can sell a few of those around this part of the country. You've never done what you should with accessories. You've got one of Ben Doyno's electric systems down there and his carburetor account and you don't pay much attention to them. All of these will bring you in quite an income if you take care of them and go after them systematically.

"You say you worked hard, but you haven't worked hard enough. I'll help you all I can, but about 95 per cent of the helping must be done by yourself. If you can't help yourself there isn't anybody else that can do the job for you.

"A few minutes ago I called you a slacker and I still stand by it. There's a chance for you to make good and get out from under—but it's entirely up to you. It is unpatriotic for you to go along in the way you have always gone. Business this year demands certain things of you and it's up to you to come across. You'd better throw away that old uniform you have been wearing for the last 20 years and get a new one."

Revisions Are
Made in Table
Every Week

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Model	Motor	S. A. B.	Ignition	Carburetor	Starting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x5 29.4 Remy		Stumg	Remy	DD	3	122	34x4 SS			1595		1595	2150	2150		
ALLEN	4-31x5 22.5 Conn		Stumg	A-Lite	D	3	112	32x3 SS			11145	1095			1395		
AMERICAN	6-31x5 29.4 G & D		Zenith	G & D	D	3	122	32x4 SS				1375					
ANDERSON	6-31x4 25.3 Conn		Zenith	Wetbe	DP	3	120	33x4 SS			**1465			2165			
De-Luxe	6-31x5 29.4				D	3					**1925						
APPERTON	8-31x5 33.8 Remy		Johnson	Bijur	DP	3	130	34x4 SS			12550		2250				
AUBURN	6-31x4 25.3 Remy		Radd	Remy	DP	3	120	34x4 SS			1345	1345					1595
6-39-B	6-31x5 29.4 Delco		Radd	Delco	DP	3	131	35x4 SS			1885	1885					1985
6-44	12-21x5 39.6 Delco		Stumg	Delco	D	6	142	34x4 QD			3750	3750	4000	4550	5000	5250	
AUSTIN	4-31x5 22.5 E'mann		Zenith	G & D	DP	4	121	32x4 QD			2600		12650		4100	4000	
BIDDLE	6-31x5 29.4 West		Stumg	West	DP	3	118	33x4 QD									
BOUR-DAVIS	4-31x5 22.5 West		Radd	West	DP	3	118	32x4 QD				1680					
18B	4-4 x5 25.6 Bosch		Zenith	U.S.L.	C	3	125	34x4 SS			7200				8400	8500	
BREWSTER	4-31x5 29.4 Delco		Own	Delco	D	3	132	35x5 SS			2805		2805		3650	4145	
BRISCOE	6-31x5 29.4 Delco		Radd	Wetbe	D	3	125	35x4 SS			11875		1875		**2275		
B-24	6-31x5 29.4 Delco		Stumg	Wetbe	DP	3	117	32x4 SS			1365	1365	1450	1625	1850	2925	
BUICK	6-31x4 25.3 Remy		Stumg	Wetbe	DP	3	117	32x4 SS									
E-34-35	6-31x4 25.3 Delco		Marvel	Delco	DP	3	106	31x4 C			795	795			1185	1845	
E-44-45	6-31x4 27.3 Delco		Marvel	Delco	DP	3	118	34x4 SS			1265	1265		11695			1265
E-49	6-31x4 27.3 Delco		Marvel	Delco	DP	3	124	34x4 SS					1495		2175		
CADILLAC	8-31x5 31.2 Delco		Own	Delco	D	3	132	35x5 SS			2805		2805		3650	4145	
57	6-31x5 29.4 Delco		Radd	Wetbe	D	3	125	35x4 SS			11875		1875		**2275		
CASE	6-31x5 29.4 Delco		Stumg	Wetbe	DP	3	117	32x4 SS			1365	1365	1450	1625	1850	2925	
CHALMERS	6-31x4 25.3 Remy		Stumg	Wetbe	DP	3	117	32x4 SS									
6-30	6-31x5 29.4 Bosch		Radd	Wetbe	DP	3	123	34x4 SS			11595	11675	1595	2195	2295	2895	
CHANDLER	4-31x4 21.7 Remy		Zenith	A-Lite	C	3	102	30x3 C			660	665			1060		
CHEVROLET	4-31x5 21.7 Remy		Zenith	A-Lite	C	3	108	33x4 SS			935	935			1475		
490	8-31x5 36.4 Remy		Zenith	A-Lite	C	3	120	34x4 SS			1385	1385					
FA	6-31x4 29.4 Bosch		Stumg	Delco	C	3	127	33x5 SS			2395	1965	2195	2465	2595	2795	
COLE	6-31x4 29.4 Bosch		Stumg	Delco	C	3	127	33x5 SS									
370	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS			11495	1350			2395		
COLUMBIA	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
CAD	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
COMET	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
C-50	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
COMMONWEALTH	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
4-40	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
CROW-ELKHART	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
CE-36	6-31x4 25.3 A.Kent		Stumg	Wetbe	DP	3	115	32x4 SS									
CUNNINGHAM	8-31x5 45.0 Delco		Stumg	West	D	3	122	35x5									
1235	8-31x5 45.0 Delco		Stumg	West	D	3	122	35x5									
DANIELS	8-31x5 33.8 Wetbe		Zenith	Wetbe	D	3	127	34x4 QDR			3250	3250	3250				
DAVIS	6-31x4 25.3 Delco		Stumg	Delco	C	3	119	34x4									
H. I. K	6-31x5 29.4 Delco		Stumg	Delco	C	3	125	34x4									
DISPATCH	4-31x5 22.5 Bosch		Radd	U.S.L.	CU	4	120	36x3 QD			1150		1250	1400	1400		
DIXIE FLYER	4-31x5 18.9 Conn		Cartier	Dyneto	D	3	112	32x3 SS			1995	995			1375		
1235	4-31x5 18.9 Conn		Cartier	Dyneto	D	3	112	32x3 SS									
MAIBOHM	4-31x4 15.6 A.Kent		Zenith	Disco	DD	3	105	30x3 C			830			1095			865
A	6-31x4 23.4 A.Kent		Stumg	Wagner	P	3	115	32x3 SS			1050	1050	1050	1650	1650		
MARMON	6-31x5 33.7 Bosch		Stumg	Bijur	C	3	136	32x4 QD			13550	3500	3550		5180	5250	
34	4-31x4 21.0 A.Kent		K D	Simma	C	3	109	30x3 C			1745	745			1195	1195	855
MAXWELL	6-41x6 48.6 Mag'to		Stumg	Wetbe	DP	3	136	35x5 QD			3500	3500	3500		4600	4650	
McFARLAN	4-31x4 22.5 Bosch		Zenith	U.S.L.	DD	4	132	34x4 QD			13500	3500					
MERCER	4-31x4 24.0 A.Kent		A.W.T.	Wetbe	F	108	32x3 SS				695	695					
METZ	6-31x5 25.3 Conn		Radd	Splitd	C	3	120	32x4 SS			1250	1250			1850	1950	300x
MITCHELL	6-31x5 29.4 Conn		Stumg	Wetbe	C	3	127	34x4 SS			11490	1510	1525	2135	2275	2850	300x
D-49	4-31x5 22.5 Conn		Schebler	A-Lite	C	3	118	34x4 SS			11650	1650			2280		
MOLINE-KNIGHT	4-4 x6 25.6 Conn		Schebler	A-Lite	C	3	122	35x4 SS			11855		1885				
C	4-31x4 22.5 Conn		Schebler	Dyneto	D	3	110	32x3 SS			995	995					
MONITOR	6-31x4 25.3 Conn		Stumg	Dyneto	D	3	117	33x4 SS			1295	1295					
C-R	4-31x4 16.9 Conn		Zenith	A-Lite	DD	3	115	32x3 QD			565	1635			965		
MONROE	4-31x4 16.9 Conn		Zenith	A-Lite	DD	3	115	32x3 QD			565	1635			965		
M-3	6-21x4 19.8 Delco		Titan	Wagner	DP	3	114	32x3 SS			1295		1985	2650	2650		
MOON	6-31x5 29.4 Delco		Radd	Delco	DD	3	125	35x4 SS			11985						
6-36	4-31x4 22.5 Dixie		Schebler	Dyneto	D	3	106	30x3			985						
MOORE	8-31x5 33.8 Dixie		Zenith	Wetbe	DP	3	128	34x4			2800	2800	2800	3600		4000	
30-E	6-31x4 29.4 Delco		Radd	Delco	DD	3	125	35x4 SS			11985						
MURRAY	6-31x5 29.4 Delco		Radd	Delco	DD	3	125	35x4 SS			11985						
6-31x5 29.4 Delco			Radd	Delco	DD	3	125	35x4 SS			11985						
NASH	6-31x4 29.4 Delco		Radd	Bijur	DP	3	125	34x4 SS			11295	1295		1465		1985	
671	6-31x5 25.3 Delco		Marvel	Delco	P	3	121	34x4 SS			11295	1295		1465		1985	
681-683	6-31x4 29.4 Delco		Radd	Delco	DD	3	128	34x4 QDR			12150	12150	2150	2645	2820		
NATIONAL	12-21x4 39.6 Delco		Radd	Bijur	C	3	128	34x4 QDR			12750	12750	2750	3245	3420		
Six	4-31x4 22.5 Dixie		Schebler	Dyneto	D	3	106	30x3			1200	11400					
Twelve	6-31x4 29.4 Delco		Zenith	U.S.L.	D	3	104	32x4 SS									
NELSON	6-31x4 29.4 Delco		Zenith	U.S.L.	D	3	104	32x4 SS									
OLYMPIAN	4-31x4 16.9 Conn		Stumg	A-Lite	D	3	112	32x3			11085	1085		1340	1565		
OVERLAND	4-31x4 27.2 Conn		Titan	A-Lite	C	3	112	32x4 SS			1915	930		1285	1485		
83B4	4-31x5 18.2 Conn		Titan	A-Lite	C	3	104	31x4 C			780	785	1840		1240		
90	6-31x4 25.3		Titan	A-Lite	C	3	116	32x4			1130	1130					
85	6-31x4 25.3		Titan	A-Lite	C	3	116	32x4									
OAKLAND	6-21x4 19.0 Remy		Marvel	Remy	C	3	112	32x4 SS			1050	1050		1550			
34-B	6-31x4 26.4 Delco		B & Ball	Delco	C	3	120	34x4 SS			11185	1185		1595	1895		
OLDSMOBILE	6-31x4 26.4 Delco		B & Ball	Delco	C	3	120	34x4 SS			11185	1185		1595	1895		
45-A	6-31x4 26.4 Delco		B & Ball	Delco	C	3	120	34x4 SS			11185	1185		1595	1895		
37	6-31x4 26.4 Delco		B & Ball	Delco	C	3	120	34x4 SS			11185	1185		1595	1895		
OLYMPIAN	4-31x4 16.9 Conn		Stumg	A-Lite	D	3	112	32x3			11085	1085		1340	1565		
OVERLAND	4-31x4 27.2 Conn		Titan	A-Lite	C	3	112	32x4 SS			1915	930		1285	1485		
83B4	4-31x5 18.2 Conn		Titan	A-Lite	C	3	104	31x4 C			780	785	1840		1240		
90	6-31x4 25.3		Titan	A-Lite	C	3	116	32x4			1130	1130					
85	6-31x4 25.3		Titan	A-Lite	C	3	116	32x4									
OWEN-MAGNETIC	6-31x4 29.4 Bosch		Zenith	O-M	OM	6	125	34x4 SS			3300	3300	3300	3650		4350	
M-25	6-31x4 29.4 Bosch		Zenith	O-M	OM	6	125	34x4 SS			3300	3300	3300	3650		4350	
O-36	6-31x4 29.4 Bosch	</															

DOBLE-DETROIT									
2-5 14	Double	Stumb	Wagner	...	135	35x5	...	...	...
4-31x44	24.0 Delco	Stewart N.E.	D	3	114	32x4 SS	...	...	...
6-4 25	38.4 Bosch	Stumb	Weths	DD	3	132	33x5 SS	...	...
4-31x5	19.6 Conn	Carter	Weths	C	3	105	30x34 QD	...	...
4-31x5	19.6 A.Kent	L-O	Dyneto DP	3	116	32x4 SS	...	...	...
4-31x44	25.3 A.Kent	Stumb	Dyneto P	3	116	33x4	...	...	...
6-3x44	21.6 Remy	Stumb	Wagner DP	3	117	33x4	...	...	...
4-31x5	24.0 Conn	Stumb	A-Lite DP	3	115	33x4 SS	...	...	...
6-31x44	25.3 Conn	Stumb	A-Lite DP	3	120	34x4 SS	...	...	...
...
4-31x44	44.1 Bosch	Zenith	Weths	D	4	140	35x5 QD	...	...
4-31x4	22.5 Own	Holly	...	D	2	100	30x34+C	...	...
...
6-31x4	25.3 A.Kent	Own	Dyneto D	3	115	32x4 SS	...	...	...
...
6-31x5	23.4 Weths	Radd	Weths	D	3	119	34x4 SS	...	...
6-3 24	21.6 Remy	Stumb	Wagner C	3	114	32x4	...	...	...
...
12-31x5	39.6 Remy	Stumb	Weths	DP	3	135	34x4 SS	...	...
6-3 25	21.6 A-Lite	Stumb	Weths	D	3	118	33x4 SS	...	...
6-31x5	29.4 Weths	Stumb	Weths	D	3	122	34x4 SS	...	...
4-31x5	16.9 A.Kent	Stumb	Remy C	3	106	30x34	...	...	...
...
4-3 24	14.4 A.Kent	Zenith	Wagner	...	3	100	28x3	...	...
6-31x5	29.4 Remy	Radd	L-N	DP	3	121	34x4 SS	...	...
6-31x5	29.4 Remy	Radd	L-N	DP	3	127	35x4 SS	...	...
12-31x5	36.3 Delco	Radd	L-N	DP	3	137	34x4 SS	...	...
...
6-31x4	25.3 Remy	Stumb	Spitdlf	C	3	116	32x4 SS	...	...
6-3 24	28.8 A.Kent	Stewart	Spitdlf	C	3	116	34x4 SS	...	...
6-31x5	29.4 Delco	Own	Delco	D	3	124	34x4 SS	...	...
...
4-31x5	16.9 A.Kent	Stumb	Bijur	DD	3	112	32x4	...	...
4-31x5	19.6 Remy	Schebler	Remy C	3	110	33x4 SS	...	...	...
...
6-3 23	28.8 A-Lite	Zenith	A-Lite	DP	3	118	34x4 SS	...	...
6-31x5	29.4 Remy	Radd	Weths	DP	3	125	34x4 SS	...	...
6-31x5	29.4 Delco	Stumb	Bijur	DD	3	127	35x4 SS	...	...
...
6-3 25	28.8 A.Kent	B & Ball	Bijur	DP	3	120	34x4 SS	...	...
6-31x5	25.3 Remy	Stumb	Stumb	C	3	117	34x4 SS	...	...
Double-6	12-31x5	39.6 Delco	Stumb	Own	DD	3	128	34x4	...
...
6-31x4	25.3 Weths	Radd	Weths	DP	3	120	34x4 SS	...	...
...
6-31x4	25.3 Conn	Radd	Weths	DD	3	116	32x4 QD	...	...
6-31x4	25.3 Conn	Radd	Weths	P	3	122	34x4 QD	...	...
...
6-31x5	25.3 Delco	Stumb	Delco	DP	3	115	32x4 SS	...	...
...
4-31x5	43.3 Bering	Ball	Weths	DD	4	130	37x5 QD	...	...
6-41x5	46.6 Bering	Ball	Weths	DD	4	142	37x5 QD	...	...
...
4-41x5	28.9 Bosch	Stewart	G & D	D	4	120	36x4 SS	...	...
6-31x5	36.0 Eisman	Radd	G & D	D	3	132	36x4 SS	...	...
...
6-31x5	33.7 Bosch	Schebler	Bosch	DD	3	132	35x4 SS	...	...
...
6-31x5	23.4 Remy	Radd	Remy	DD	3	120	34x4 SS	...	...
...

ABBREVIATIONS—"A.C." Allis-Chalmers, "L.N." Leese-Neville, "Titan" Tillotson, "B & Ball" Ball & Ball, "A.Lite" Atomizer, "Reich" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spitdlf" Spitdlf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37x5x5/8 means that the rear tires are 37x5x5/8, and the front are smaller. Detachable top, 300x, means \$300 extra.

Eagle Tractors Shipped to Italy

APPLETON, WIS., March 7—The Eagle Mfg. Co., Appleton, Wis., last week made its first shipment of one carload of farm tractors to Italy on a large order from the Italian Government. The company is now putting the finishing touches upon its new tractor factory, 120 x 120 ft., and within 2 weeks expects to be able to make regular carload shipments to the seaboard at least once a week. The new shop will be devoted exclusively to tractor manufacture and the original works to gas engines and other farm machinery.

Babcock Spring Builds

MILWAUKEE, WIS., March 8—The Babcock Automobile Spring Co., 192 Milwaukee Street, Milwaukee, Wis., has concluded arrangements for the erection of a new plant on Jefferson Street, between Knapp Street and Juneau Avenue, at an estimated cost of \$25,000. The building will be two stories high, with basement, and 60 x 128 ft. in size.

Jackson Munitions Buys Mutual Plant

JACKSON, MICH., March 8—The Jackson Munitions Corp. has practically closed contracts with the old Mutual Motors Co. to take over its entire plant. Work has already started, and it is planned to begin manufacturing shells April 1. Two-thirds of the factory will be devoted to shell manufacture and between 800 and 1000 men will be employed.

Production of shells will start within a week at the Jackson Automobile Co. plant. Other plants that will engage in the manufacture of shells are the Jackson Cushion Spring Works, the Sparks-Withington Co. and the Mott Wheel Works. A committee of real estate men is now making a canvass of the housing situation here so that homes may be obtained for the hundreds of men who will be brought to the city. Employment will be given to all available local workmen first.

Raise Missouri Car Insurance Rates

ST. LOUIS, MO., March 7—Liability insurance rates on motor vehicles are advanced in a schedule issued by the Missouri Compensation Bureau issued last week. Insurance on passenger cars advanced 25 per cent and on trucks 60 per cent. On collision rates the \$25 deductible clause has been withdrawn and a \$100 clause substituted. The rates for full collision coverage have advanced from 50 to 75 per cent. The Bureau representative explains the advance by showing the higher damages awarded by juries in personal damage cases.

Townsend Adds to Tractor Output

JANESVILLE, WIS., March 7—The Townsend Mfg. Co., Janesville, Wis., manufacturing oil tractors and oil engines, is erecting a number of additions which will make it possible to increase the output to 650 or 700 tractors during

1918. The new buildings are: Forge and sheet metal shop, 40 x 70 ft.; machine shop and assembly floor, 60 x 120 ft.; office building, 25 x 30 ft. To supplement the present power plant, the company is building in its own shops a 30-40-hp. Townsend type oil engine. The company is working night and day shifts at this time.

Universal Car Equipment Co. Bankrupt

DETROIT, March 7—The Universal Car Equipment Co., maker of body and top equipment, such as fenders, tire holders, radiators, shields, etc., has been adjudicated bankrupt and its equipment will be sold at auction on March 11, in Detroit. Creditors have been notified that they should be prepared to close up their business with the bankrupt corporation on March 12. The property for sale at auction is valued at \$2,953.50. The sale has been called by Lee E. Joslyn, referee in bankruptcy.

Bowman General Manager of Acason

DETROIT, March 7—J. F. Bowman has been elected vice-president and general manager of the Acason Motor Truck Co. He was formerly vice-president and sales director of the company, prior to which time he was sales manager for the Federal Motor Truck Co. H. A. Conlon has been promoted from assistant sales manager of the Acason company to sales manager. He was formerly assistant sales manager of the Federal company.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Cedar Rapids, Ia....	Cedar Rapids Auto. Trade Assn....	Mar. 11-16	Rochester, N. Y....	Tenth Annual, Rochester Auto... Mar. 25-30
	Auditorium.			Trades Ass'n, Exposition Park.
St. Louis, Mo.....	Used Car, St. Louis Auto Mnfrs. ... Mar. 11-16			C. A. Simmons, Mgr.
	& Dealers' Assn., Exhibit Bldg.		Fort Fairfield, Me....	Reed's Garage. R. F. Reed, Mgr. Mar. 27-29
	Robt. E. Lee, Mgr.		Atlantic City, N.J....	Second Annual, Garden Pier..... Mar. 30-
Fargo, N. D.....	Gate City Auto Show Co., Audi-... Mar. 12-15			W. W. Garabant, Mgr. Apr. 6
	torium. J. W. Murphy, Mgr.		Chicago, Ill.....	Second Annual Used Car, Chicago Mar. 30-
Raleigh, N. C.....	Auditorium. John Kelley, Mgr. Mar. 13-16			Auto. Trade Assn., Coliseum. Apr. 6
Peoria, Ill.....	Peoria Auto Accessories Dealers' ... Mar. 13-16		Hartford, Conn.....	Hartford Automobile Dealers' Mar. 30-
	Assn. W. O. Ireland, Mgr.			Assn., State Armory. B. F. Apr. 6
Warren, Pa.....	Warren Automobile Dealers' ... Mar. 13-16			Smith, Mgr.
	Assn., Rossell Garage.		York, Pa.....	York Automobile Dealers' Assn. Apr. 1-6
Great Falls, Mont....	Montana Automobile Distributors ... Mar. 15-20			Queen St. Tabernacle.
	Assn., Lexington Garage. A. J. Breitenstein, Mgr.		Green Bay, Wis.....	Brown County Automobile Trade Apr. 6-8
Vancouver, B. C.....	Western Canada Automobile ... Mar. 19-23			Assn.
	Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.		Red Bank, N. J.....	Monmouth County Auto. Dealers' Apr. 6-13
Houlton, Me.....	Second Annual, Houlton Motor ... Mar. 20-22			Assn., Armory. E. C. Von Kat-
	Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luther, Mgr.			tengell, Mgr.
Holdredge, Neb.....	Second Annual of Southwest ... Mar. 20-23		Reading, Pa.....	Reading Automobile Trade Assn. Apr. 8-13
	Nebraska.		Deadwood, S. D.....	City Auditorium..... Apr. 15-20
Trenton, N. J.....	Trenton Auto Trade Assn., Sec-... Mar. 20-23		Calumet, Mich.....	Upper Peninsular Show, Copper ... Apr. 17-20
	ond Regiment Armory. John L. Brock, Mgr.			County Automobile Dealers' & Garage Owners' Assn., Coliseum.
Greensboro, N. C....	First Annual. John Kelley, Mgr. Mar. 20-23		Davis, Cal.....	Tractor Demonstrations, Univer-... Apr. 17-19
Bridgeport, Conn....	Sixth Annual Cars and Trucks ... Mar. 25-30			sity of California.
	Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.		Lima, O.....	Ohio State Automobile Assn. May 3-7

Conventions

Detroit, Mich.....	World's Salesmanship Congress.... Apr. 24-27
	Third Annual Session.
Hot Springs, Va.....	Convention National Association.... June 5-13
	of Automobile Accessory Jobbers.

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 12

New York, March 20, 1918

Ten cents a copy
Two dollars a year

A Hundred Million Copies
of the Best Periodicals Display

Champion Ads

Dependable Spark Plugs Big Ones

This Year



TWO-PAGE and page advertisements in The Saturday Evening Post, full pages in Collier's Weekly, Literary Digest and Popular Mechanics—

Good big ads in The Christian Herald, Sunset Magazine, Country Gentleman, Successful Farming, National Stockman and Farmer, Breeder's Gazette, Hoard's Dairyman and twenty other agricultural publications—

In all, over a hundred million big advertisements of Champion Dependable Spark Plugs are being printed and circulated this year.

And the return to Jobbers and Dealers everywhere is more good hard cash than has ever before been possible in spark plug profits.

Champion Spark Plug Company Toledo, Ohio



The NEW IMPROVED **UTILITY** Universal Rim Wrench Now Belongs In Every Tool Box and Every Garage

New-Improved
Price Still
\$1.50



The **UTILITY** Rim Wrench is now the most beautiful and serviceable tool for use about the motor car—whether in the tool box of the car owner or in the public repair shop or garage.

As before this one tool **automatically** fits every nut used in connection with demountable rims on all makes of cars. And in addition to its merits of last year it is now—

Beautifully finished in nickel and black enamel, more compact and lighter, built with practically unbreakable jaws, shortened to go in tool box without folding, absolutely rigid in action—a stronger brace that cannot close up or slip while in use by the operator.

Sell your customers this essential tool that displaces socket wrench sets at a fraction of the cost.

AN ABSOLUTE NECESSITY FOR REPAIR WORK in any garage. Pays for itself at once in savings. **DEALERS, order from your jobber.**

Write for complete details.

HILL PUMP VALVE COMPANY

Archer Ave. and Canal St., Chicago, Ill.

Eastern Sales Office: 149 Church St., New York City.

Western Sales Office: 149 New Montgomery St.,
San Francisco, Cal.

Manufacturers of Famous **UTILITY** Protected Heaters
for all motor cars.

MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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 A. B. Swetland, General Manager

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 Charles B. Shanks, Manager

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You Need the CORBIN-BROWN SPEEDOMETER On Your Ford

Ford cars usually see hard service, so it is important to have them equipped with a speedometer which will combine to the highest degree the qualities of strength and accuracy.

The Corbin-Brown Ford Special fills the bill perfectly because it is designed, built and installed to meet the exact conditions existing on the Ford. It is attractive in appearance, stronger than need be in every part and unfailingly reliable.



The cowl board equipment, as illustrated, provides an excellent means of fitting the Corbin-Brown speedometer to the Ford. The instrument is of typical Corbin-Brown quality throughout and is beautifully polished and nickel-plated. The trip can be reset to zero instantly by simply pushing the knob inward.

The board is of hard wood, finished in dull, long-wearing rubber black. It is grooved to fit snugly under the windshield and is fastened in place by two steel brackets.

A special hanging bracket to suspend the instrument from the cowl of the car or the regulation circular bracket can be furnished instead of the complete cowl board if desired.

The Corbin Screw Corporation

THE AMERICAN HARDWARE CORPORATION, Successor

New Britain, Conn.

BRANCHES: New York Chicago Philadelphia

Makers of
 Corbin Duplex Coaster Brakes for Bicycles

When writing advertisers please mention Motor World—it identifies you

Why Tractor Makers Prefer Oliver Plows

The tractor maker knows how important the plow behind his tractor is. His success as well as yours largely depends upon providing just the plow that best meets the soil requirements.

And he knows that Oliver Tractor Plows assure perfect plowing. His confidence rests upon Oliver's sixty years' of progress that have made

Oliver the plowman's choice the world over.

Near you is an Oliver branch that stands ready to help you make a success of your plow line with whatever tractor you sell.

*Ask us to tell you
about Oliver Service*

**Oliver Chilled
Plow Works**

South Bend,
Indiana

OLIVER



Scientific plow making began fifty years ago when James Oliver invented the famous Oliver Chilled Plow. Now the Oliver Plow Works is the largest exclusive plow factory in the world, well worthy of the title "Plow Makers for the World."

When writing advertisers please mention Motor World—it identifies you

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, March 20, 1918

No. 12

Your Part Is Easy !



The Third Liberty Loan will be ready April 6. Are you going to be ready, too?

Buy Liberty Bonds

Leavitt Tells Why



J. W. LEAVITT

San Francisco, Oldsmobile, who has been in the motor car business for 14 years

Says:

IT does not seem any more necessary to give reasons why dealers or other citizens should support the third Liberty Loan than to give reasons why they should support their families dependent upon them. *It is their duty and they must do it.*

Our Government is dependent upon its people, whose

plain duty is to support their Government to the best of their ability in all its undertakings.

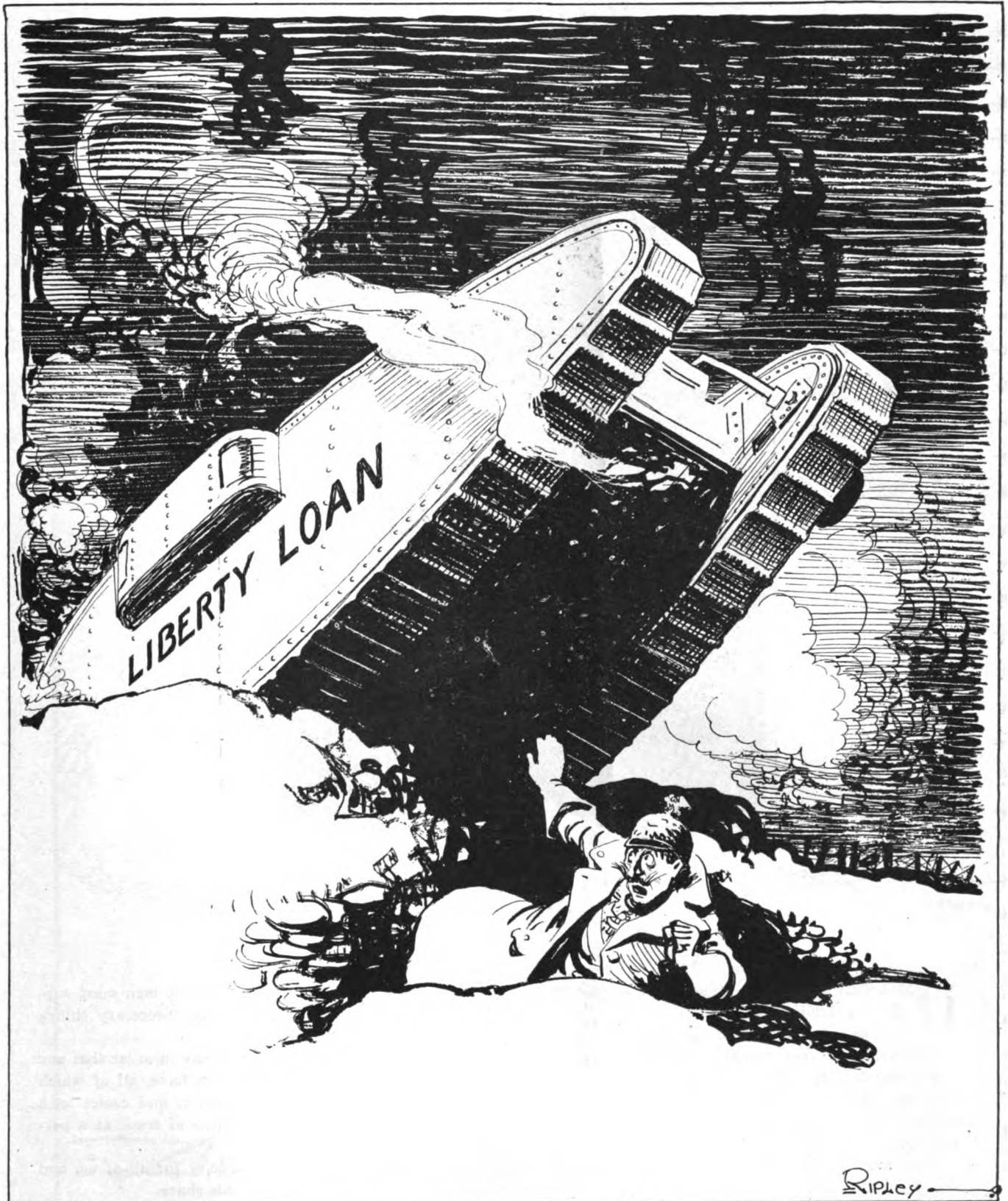
In the present world's conflict our Government is actuated by the loftiest of motives, which should inspire all our people to do their utmost to back up the Government.

Get
This



The present pitiable position in Russia, of a people without a government, should impress us with our good fortune in the possession of our grand Government, and inspire all our people to do their utmost to make that Government successful in what it undertakes. THIS MUST BE DONE.

Tank the Brute!



Buy Liberty Bonds

Pence Tells Why



HARRY E. PENCE

Minneapolis, Buick, who has been in the motor car business for 14 years

Says:

DEALERS should buy Liberty Bonds because it is their patriotic duty. That should be reason enough. But there are others.

Mechanics and transportation must win the war.

Automobile men must be looked to to carry heavy burdens. They must furnish mechanics and transportation. They must provide means for tilling the soil and feeding the world.

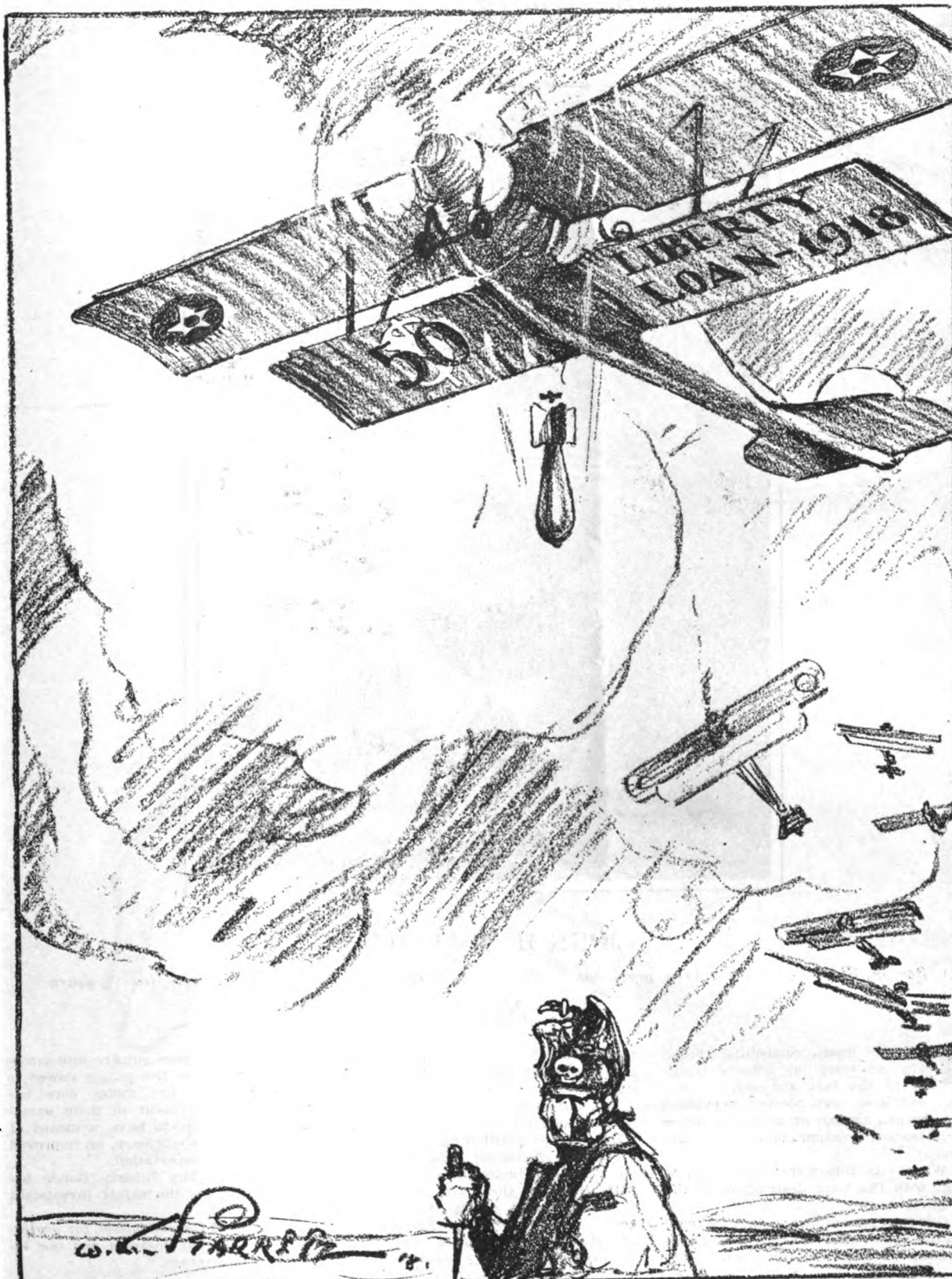
They must assist the railroads by supplying trucks and transportation commodities.

And, more important yet, automobile men must supply the money with which all these necessary things can be done.

They must buy Liberty Bonds freely in order that our government may buy what it must have, all of which money is only a loan to our country, and comes back into our hands through the channels of trade as a permanent possession.

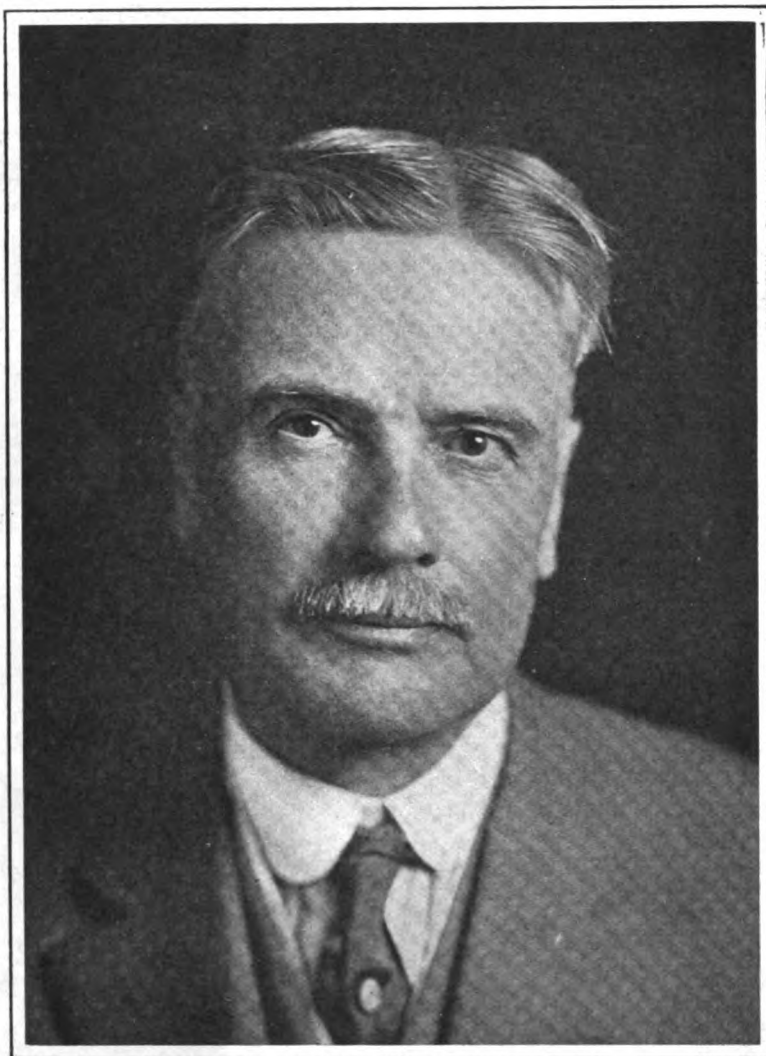
Liberty Bonds buy future security for all of us, and every one of us should pay for his share.

Buy a Pair of Wings



Buy Liberty Bonds

MacAlman Tells Why



JOHN H. MacALMAN

Boston, Stearns, who has been president of the Boston Automobile Dealers' Association for 14 years

Says:

THE one great, compelling reason why we must buy Liberty Bonds is, in the last analysis, to protect our lives, our homes, everything we cherish, against an enemy to whose ruthlessness Belgium stands as a monument.

We are in this war to win, and to win with the least destruction of life requires money.

Our government has pledged its word to the cause of democracy and civilization, our dollars must keep that

pledge, which hundreds of thousands of our citizens are backing with their lives.

As automobile dealers we have a peculiar interest in the Liberty Loans. We are the distributing factor in a great manufacturing industry. Without buyers industry cannot live, and without money there are no buyers.

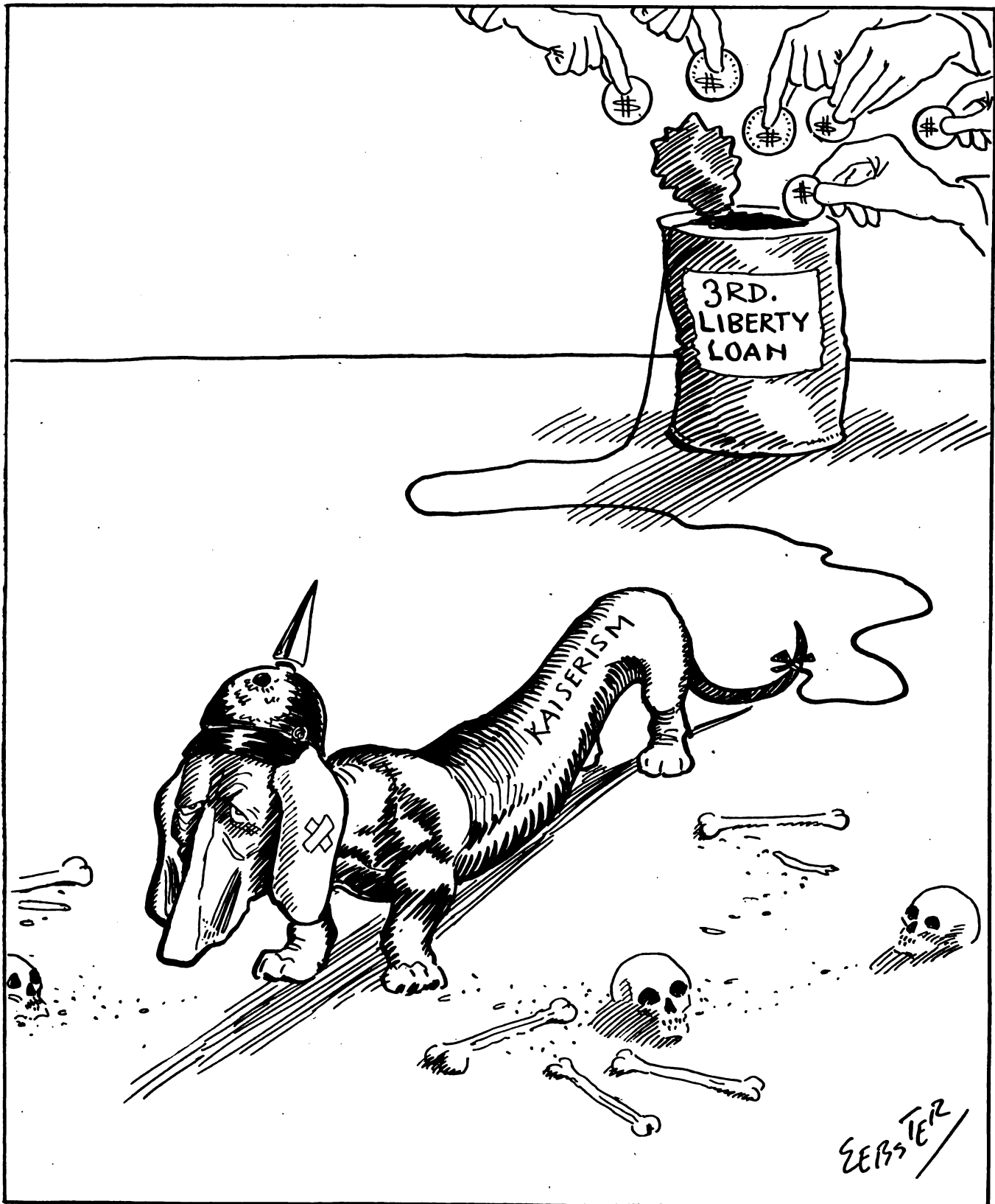
Liberty bonds supply the money to keep all industry going. The proceeds of the Liberty Loans are spent almost entirely in this country.

This money goes quickly into circulation and gives the people power to buy—and they buy motor cars because these represent to them something they desire to have, a means of increasing their efficiency, an improved method of transportation.

We should buy Liberty Bonds because they are the safest investment in the world.

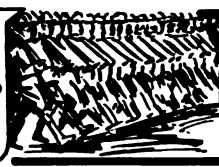
They stand for patriotism, for protection and for our common and our individual advantage.

If You Want Quick Action, Drop Your Rocks in This Can





Buy Liberty Bonds



What Is a Liberty Bond?

Let us first ask what is a bond?

A bond is a promise to pay by an individual, a corporation or government a certain amount of money with interest on a certain date.

What is a Liberty Bond?

A Liberty Bond is a promise of the United States Government to pay a certain amount of money with interest on a certain date.

What is a security for this bond?

There is no particular group of assets named as security for this bond, but it is secured by the promise of the Government of the United States of America. In order to pay this bond the Government could, if necessary, levy any kind of tax necessary to pay the bond. This means that everything that you can see by looking out the window is security for this bond. The chair in which you sit, your automobile, your bicycle, your clothes, your home, the street cars on which you ride, the restaurant where you eat dinner, the railroads, the newspapers, the magazines, the farms, the mines, the mills, and all the resources and property in the country are the security for this loan, no matter who happens to be the owner of them at the present time.

How could my house be used to make good on this promise to pay?

When the time came for the bond to be paid the Government could levy taxes upon your property to raise the money to pay for them, and if you refuse to pay the taxes the Government could sell your house and take whatever part of the money is needed to pay to the bond; thus you see the house in which you live would be used to pay for these bonds. The same thing applies to all the property in the country. That is why we say that all the resources of the United States of America are securities for Liberty Bonds.

Do you mean that the Government is going to this extreme to pay these bonds?

Hardly. By paying for these bonds in the future at the rate at which payment is provided the money can be easily raised by reasonable taxation. We merely cite the foregoing instances to assure you that there is ample security for these bonds. It is impossible that they be not paid.

Are these bonds a safer investment than railroad securities and bonds issued by corporations?

They are the safest securities in the world. A railroad may fail and go into the hands of receivers, but it is not conceivable that our Government would meet any such fate—providing we win the war.

What do you mean by the last remark, "providing we win the war"?

Just this: The resources of America are ample for winning the war and it is impossible for this country to be defeated if it goes into the contest with all its energy, but the country is nothing except the people of which it is made, and if they do not support the war there may be disastrous results. The one sure way to make the bonds good is to buy them.

How is the interest on these bonds paid?

A bond is just like a book. The front page of the book is the bond itself; the latter pages are made up of little coupons or stamps, each one of which is good for the interest on the bond for a 6 months' period. On these little coupons it tells the date on which they are payable. On those dates you simply tear off or cut out these little coupons, take them to the bank and deposit them just the same as you would real money. They are just the same as money.

What happens after the last of these coupons is torn out?

On the second Liberty Loan there were coupons enough to last 30 years, but the law provides that the Government may redeem the bond after 15 years if it cares to do so. If you have cut out 15 years of interest-bearing coupons and the Government decided to redeem the bond it would simply take it back and you would receive no more interest.

Would that not be cheating me out of 15 years' interest?

No. You would be given back the money you had paid for the bond at the beginning.

Does this mean that we get back again all the money that we paid for the bond?

Certainly! And that is one point that many people do not seem to understand. The money that is paid for Liberty Bonds is not given away. It is simply invested. It is just the same as though it were put in the bank, except that it has to remain for a certain

time. When that time is up the money is returned to the person who holds the bond, and for all the time that the money is invested in the bond the coupons provide interest. After the bond is redeemed by the Government and the money is paid back to the holder of the bond the money can be reinvested or put into the bank to draw interest there, as the owner sees fit.

But, supposing I want my money before the time comes to redeem the bond?

Liberty Bonds are just the same as railroad bonds or any other securities. They are worth a certain amount of money and can be sold just the same as a railroad bond can be sold if the owner finds that necessary. The Government, of course, recommends that bonds should not be sold once they have been bought unless the owner needs the money, but if he needs the money there is nothing in the world to prevent him from selling the bond and cashing it just the same as he would cash a check?

Do they not say that these bonds cannot be sold for what they cost?

If everyone started out to sell Government bonds which actually are worth, let us say, \$100 each, there would be a supply that might perhaps be greater than the demand, and for a time it might not be possible to get the full \$100 for a one hundred dollar bond. They might be worth \$99 or \$98. However, unless one is compelled by necessity to sell the bond and make this sacrifice of a dollar or a fraction of a dollar on \$100, the money is perfectly good, because when the Government comes to redeem the bond it pays back the full value regardless of what they might be selling for on the market at that particular time.

Furthermore, as a general rule, government bonds sell for better than what they cost because the security is so good and the interest is sure. It is said that enemies of America have endeavored to stop people buying bonds by rushing into the stock market with a great quantity of them and trying to force them down in price, thus making many people believe that the bonds were not a safe investment. This forcing down of price can be accomplished temporarily with any securities. If enough of them are put into the market the price goes down temporarily, but once the supply ceases the price goes back again, and in the case of Government bonds it generally goes back above the amount that was paid for them. **When we return to normal conditions the bonds—as shown by history—will undoubtedly go back above par and you can sell a \$100 bond for considerably more than \$100. Before the war government 3 per cent bonds were selling for about \$104.**

Supposing I should lose the bond, then what?

Supposing you should lose a \$5 bill, then what? If you had the number of the \$5 bill and could trace it by its number you might get it back, and if you have the number of the bond, which number is also

on the interest-bearing coupon, you might eventually be able to get the bond back. But a bond of the ordinary kind is just the same as a bill. It belongs to whoever happens to have it.

Is there no protection against the holder of a bond?

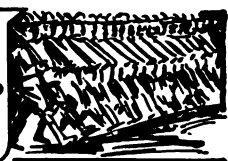
Yes, you can buy registered bonds. These registered bonds do not have interest-bearing coupons, but on every interest date the Government sends you a check and it has a record of the owner of the bond. This prevents the interest going to any other than the holder of the bond, and when the time comes to redeem the bond you are sure of getting your money. The only objection some people have to having a registered bond is that there is just a little bit of red tape required to sell it. If you wish to sell it you have to go through the formality of a transfer, and most people would rather take the chance on a plain, ordinary bond than go to this trouble in case they wish to sell it. You would rather have a \$5 bill than a \$5 check, because you can cash the bill anywhere and you have to be identified before you could cash the check. There is just a little bit more trouble, although the one is just as good as the other. The same comparison applies to bonds. The plain unregistered bond can be passed around the same as currency, whereas a registered bond cannot be so handled. Security in the latter case is, however, greater. Furthermore, registered bonds in the last loan were not issued in the small \$50 denominations.

Have you not said in Motor World that money must not be "tied up in old socks" and in savings banks? Is not investing money in Liberty Bonds just the same as tying it up in a sock or putting it in a savings bank?

No, decidedly not. If you took a \$50 bill and kept it in your pocket it would be useless; it would not be working. If you invest it in Liberty Bonds instead of putting it in a bank you have really put your money in savings so far as you are concerned. The savings are represented by the Liberty Bond. But now, what becomes of the \$50? You turn it over to the Government and the Government, which needs a great many supplies of all kinds at this time, goes to some manufacturer and buys goods with the \$50. The manufacturer pays the \$50 out again to his employees and to the makers of raw materials and the money immediately goes back again into the channels of trade and into circulation. Perhaps the identical \$50 bill that you paid for a bond may in a few days come back again into your own hands. Who can tell? And so you see that money that is invested in bonds is put into circulation instead of being tied up. Furthermore, the man for whom you work may be in need of that very \$50 bill to help pay you your salary during the coming month, and if he can't get that \$50 bill, how is he going to pay you? If you fail to buy bonds you are simply holding out upon yourself. You are hurting business, you are tying the hands of the men in the trenches and you are getting a millstone ready for your own neck.



Buy Liberty Bonds



Organize the Trade in YOUR City for the Third Liberty Loan

THE Third Liberty Loan campaign will open April 6, the day one year ago that your country entered the war. Every trade in every city should organize to help put the loan across, unless there is some other adequate organization in the city for handling the job.

The First and Second Loans went over big.

Put this one over bigger.

If there is an association to handle the work, so much the better. But, in any event, there must be a special organization of the trade for this work.

Next week Motor World will present the outline of a plan. It will show how to divide the trade into divisions right down to the group of men in the service station.

The one big idea is to GET ORGANIZED.

Attention should be given to this matter NOW. You should begin to think

about it. You should get your own mind and the minds of all with whom you come in contact in such a condition of readiness that there won't be much selling necessary when the drive begins.

All the preliminary work you can do NOW will make the results that much bigger and easier later on. From now until April 6 think and talk about the loan. When it comes don't let it be a surprise to the people who are associated with you in business.

Furthermore, Motor World wants to know all about what different cities and associations are doing or plan to do to put the loan across. Write Motor World to-day and tell your story so that it may be told to all the rest of the cities in the country as an example of how the plan may be carried out.

Tell us also the story of how you handled the last loan. Let us have this information NOW, for this is an occasion when time counts.



Buy Liberty Bonds



Little Piece of Bad Road Blocks Traffic

Stretch Across Ohio-Pennsylvania Line Ties Up Miles of Good Boulevards

NEW YORK, March 18—An 18-mile stretch of almost impassible road northwest of Beaver Falls, Pa., is an effective barrier to the successful driving of new cars and trucks from the factories of Cleveland and Detroit to the east by way of Pittsburgh and Philadelphia, in the opinion of R. H. Johnston, New York manager of the White Co., who has just returned from an exploring trip over this road.

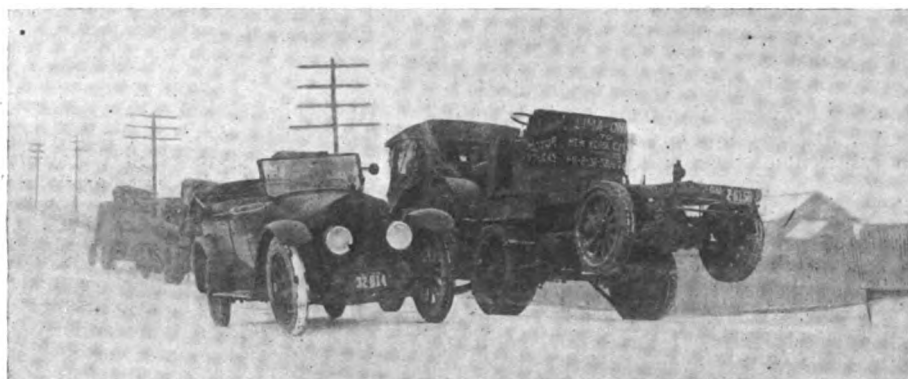
The neglect of the comparatively short stretch of road between Beaver Falls, Pa., and New Springfield, Ohio, has practically shut off, for the time being, motor travel between the Middle West and the Atlantic seaboard.

"While we were in Pittsburgh," said Johnston, "we had been fully advised of the condition of this road and, accordingly, when we came to the beginning of this bad stretch, we left our car and walked ahead through the fields to inspect the road. We found the road strewn with license plates, engine pans, tail-lights, runningboard fixtures, and other equipment, proving only too plainly that all the cars had been running aground and that neither high power nor skilful driving was of any avail.

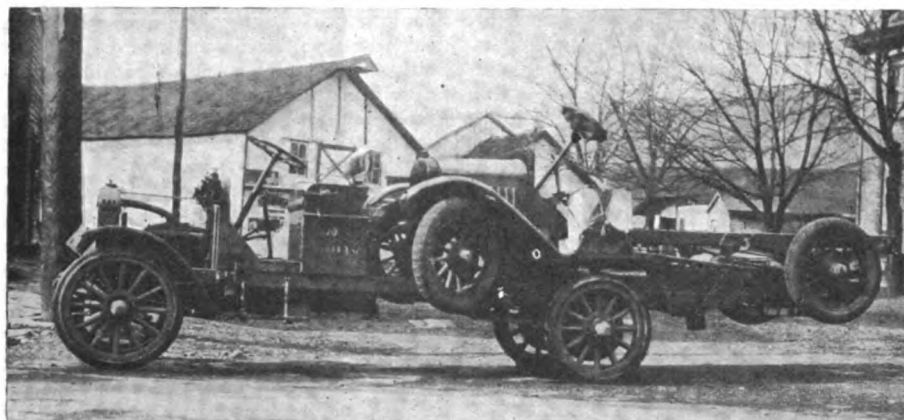
"The reason the road is so much worse than the ordinary bog road is that the passage over the road of heavy govern-



Trains of White trucks are encountered along the West-East highway en route to Atlantic ports



Sights like this are common. The "natives" no longer turn to look at trains of Garfords



Efficiency is part of the truck driving plan. When one truck is big enough it is made to carry another

ment trucks, some with 40 hp., has created ruts in the road and the weight of the trucks has pushed down into the mud all the broken stone and other solid material which has ever been dumped

on the road. Some of the drivers who had succeeded in coming through estimated that there were 200 cars stuck in the mud and practically at a stand-still, and others estimated as high as 500.

"All the possible detours have been tried and those who have tried them tell the same kind of stories. In fact, the only method which has proved effective for getting around this bad stretch of road is that adopted by the Quartermaster's Department. The heavy motor trucks which are coming over the road for that department are being carried around this bad road on railroad flat cars. This means of transportation is not available for privately owned trucks. And yet this road was in fair condition a few weeks ago when the entire stretch of road was frozen.

"The reason for the present condition is that each state has looked on its highway system as being purely a state problem. There is no town of any size in Pennsylvania northeast of Beaver Falls, so why build a road to a jumping-off place on the state line? Similarly, they reason in Ohio, We will connect our own cities, but why spend money in improving a road to a little hamlet on our eastern boundary line?"

LAST week the story in this Reilly series was about

The Man Who Was a Slacker

It told about the dealer who isn't making any effort to fit himself into the new scheme of things. Read this week's story and then watch for those that follow. They all apply to spring business. They are:

- 3—The Locked Door
- 4—The Street Without a Name
- 5—Ghosts That Are Unemployed
- 6—The Invisible Ink

THE HORSE WITHOUT A RIDER

The Second of a Series of Six Stories

By Ray W. Sherman

“WELL, Miller,” said Reilly, “how are things coming down in Merrylton?”

“Not very well,” said Miller. “I thought a lot about all the things you told me the other day about me being a slacker if I didn't have new ideas this year and sell a lot of things I never sold before and sell a lot of cars where I never thought I could sell 'em, and I have been kind of trying to do some of the things you told me about.”

“That's fine,” said Reilly. “What have you been doing?”

“Oh,” said Miller, “I have inquired around a lot about this truck that we've got the agency for and I think maybe I can sell some of them before the summer is over.”

“What about cars?”

“Well, I think we can sell some this summer,” Miller replied.

“Got any prospects for either the car or the truck yet?” Reilly asked.

“No,” said Miller, “I haven't. I have one or two people in mind that I think might buy a truck, but I don't know that they will.”

“In other words,” said Reilly, “you've just kind of been thinking about it, but you haven't done anything. Is that the idea?”

“Well”—hesitated Miller—“you see—I don't think that's quite it—I am getting started at the thing. I think I'll pull through this summer all right after I get started.”

“After you get started just about expresses it,” said Reilly. “You've got to do a good business down there this summer, Miller, or I'm going to get somebody else in Merrylton. There isn't any profit for me in having a dealer in your section who can't make money. You're a liability and not an asset.”

“Furthermore, you never will get started anywhere unless you have a business plan. Where do you suppose I would get off if I didn't have some idea of what I was going to do this coming summer? How do you suppose I would be able to make a contract for a certain number of cars if I didn't have a pretty well defined plan as to where I was going to put them and how I was going to sell them?”

“You've got to have plans in your business, Miller, or you won't have any business. Business without any plans is like a horse without a rider. It's a fine piece of work, but it hasn't any possibility of getting anywhere.”

“What do you suppose a racehorse would do if he started around the track without anybody to guide him? There used to be one horse that made a record doing that sort of thing, but he never developed any very unusual speed and it's not a common practice with horsemen who want to make records.”

“What you want to do is get some business plans. You should take a sheet of paper in your hand, sit down at your desk and put down in black and white what you expect to do all summer and just how you're going to do it. If you do that you have some prospect of getting it done and if you don't do that the possibility is you'll come through this summer with a pretty small volume of business, unless some one comes along and hands you a lot of profits on a silver platter. That has been known to happen, but it isn't a safe thing to bank on.”

“Now let's take a piece of paper and see what there is that you can do. You've got twenty-five cars contracted for and five trucks. How are you going to sell these? One of the first things you must do is have a prospect list. Maybe you have one now and maybe you haven't. If you have one the chances are it's old and getting rather rusty and it ought to be revamped or thrown away and a new one started. Therefore, when you go back home go through this list, throw out the dead ones, put them in a dead file, get up a live list and add to it the names of all the people you can find in your territory who have cars or who ought to buy Sennett cars. Every man who has a big, heavy car is a prospect for one of our cars.”

“And then let's make up a list of some of the farmers that you think might buy our trucks, and then let's make up a list of some of the people who might use this little trailer we've got and see what we can do with them. Then let's look over your accessory department to see whether or not you have a good display and let's look over your electrical department equipment and your carbureter

business and see whether there aren't some things that can be done with those.

“Let's set these things down in black and white on paper so that we will have a real plan to guide us. Then after you get this plan done it's just as a blueprint of a building is to a contractor. He knows before he starts just what he has to do, just what he has to have to do it and he has a pretty good idea of how long it's going to take him to finish the job.”

“That's one place, Miller, where thousands of dealers fall down and don't make all the possible profit they could. They don't have a sufficiently definite form of business plan laid out. They go ahead on a sort of by-guess basis. During past years some of them have come through in good shape and some of them haven't. The highways of this industry are strewn with cast-off dealers who have failed to make good. One of the greatest reasons they have not come through is that they didn't know where they were going when they started out and the result is that they wound up in a place they didn't anticipate reaching.”

“You've got to PLAN to do some advertising. You can't say, to-day, I guess I'll run an ad, and then after you think people have stopped talking about it, decide that you'll run another one. What you must do is lay out a regular campaign of advertising, get your copy ready and decide how much you can spend and then go ahead and spend the money and run those ads.”

“If you don't do that you're not going to have the slightest idea as to how much advertising you're going to use and the possibility is that your advertising will be appearing at a time when it won't do you the maximum amount of good.”

“You also must fix up your place of business. You probably have a broken window. Now, between you and me, what is the sensible way to go about getting windows fixed? You can't do it by saying to yourself, ‘I guess some day I'll fix these windows, they certainly ought to be repaired.’

“The way to do it is to take a pad of paper in your hand and a pencil and go around through your building and find how many windows are broken, what the sizes are and at once put in an order

The Rider Who Wins



with a hardware man for the required amount of glass.

"Then when the glass comes turn it over to one of your men and tell him to fix the windows. If you start out like that you have a plan, but if you simply sit around and say they ought to be fixed

and that you guess you'll fix them some day, you'll never get anything done.

"The plan for your business is the same thing. You may decide that you ought to have a better place to display your accessories so they will sell themselves without your doing so much work

to move them. Keeping them in the stockroom will never make you any money. It keeps your money tied up when it ought to be out working for you. Therefore, you should go home to-day, take a look at your place of business and

(Continued on page 49)

SCIENTIFIC CONSTRUCTION

GARAGES

SHOWROOMS

REPAIRSHOPS

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

Concrete Guides for Garages

TO prevent cars being damaged by striking adjacent cars when being moved in and out of garages, guides of some sort should be provided.

Even if guides are not used, it is desirable to use some sort of a mark to indicate the breadth of the stall space and to insure the car being placed in approximately its correct position. White-washed lines on the floor have been used to some extent, but they are soon dirtied and must be repainted, and furthermore they are difficult for the driver to see, although if a floorman watches the driver manoeuvre his car in, they are of some service.

A satisfactory method of dividing up the spaces is to use concrete wedges, Fig. 1. Although these prevent the car from running back into the wall or into the next car and also define its position, at the same time they do not prevent collision or side scraping the cars on either side.

It is believed that the guides shown in Fig. 1 were originated by the designer of the garage recently erected by the Hudson Motor Car Co., New York City. It might be termed the flatiron type to distinguish it from other types. Another name which is descriptive but not quite so brief is boat-shaped islander. It is

raised about $4\frac{1}{2}$ in. from the floor, is 10 ft. long and 49 in. wide.

When the car is backed in, the wheels must necessarily come each side of the island. Allowing for the width of the tires, this shaped island allows a leeway of 3 or 4 in. one side or the other of the car, but it is impossible under any circumstances for the car to approach its neighbor on either side. Consequently, no matter how careless the driver is, he cannot damage adjacent cars when driving in or out, neither can the unskillful driver injure his own car as might be the case if this protection were not afforded. The use of such a guide therefore gives practically the same security as would be obtained by housing this car in a private room.

A concrete bumper 6 in. high near the rear of the space prevents the car from being backed into its neighbor or into the wall in the rear. Only one of these bumpers is required for every two cars.

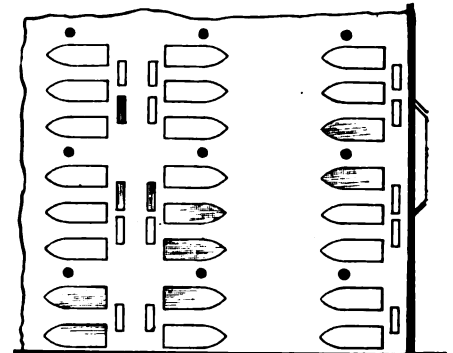
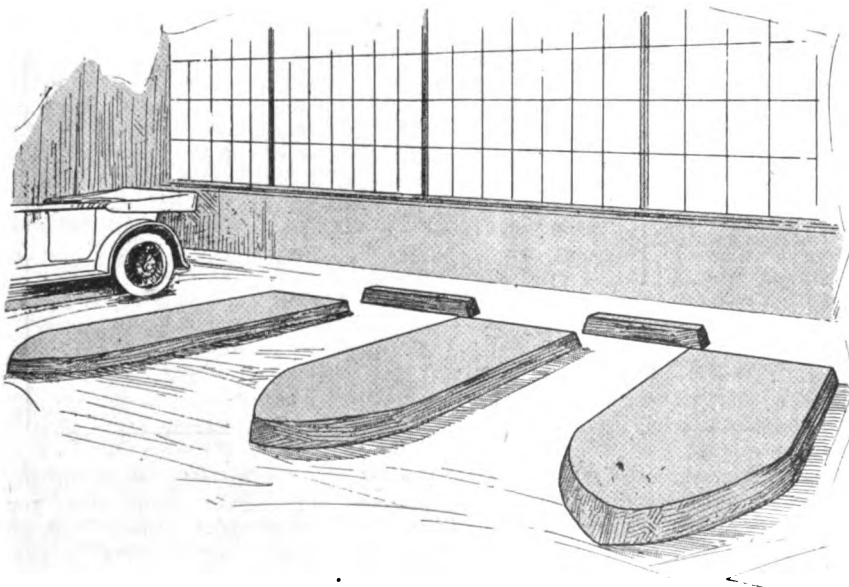
Another type of concrete guide which accomplishes the same purpose, but allows a little more room for working underneath the car, is the one illustrated in Fig. 3. This guide also prevents cars from backing into their neighbors in the row to the rear. There is not so much raised concrete used in this design and

the walking space between the cars being raised is more likely to be clean. The 4-ft. aisleway between the backs of the two rows of cars is necessary to accommodate the rear overhang and could be increased if desired to provide more walking space.

A third type of concrete guide, Fig. 4, is simpler than the first two and is particularly adaptable for use against the wall. It insures the back of the car from damage by striking the wall, as well as preventing side scraping. As with the others the height of the raised portion should be about $4\frac{1}{2}$ in.

Although the two designs of guides give the same security from impact as are afforded by a private garage, they do not give the privacy. Therefore, in concluding it is worth while to consider the advantages and the practicability of allowing each owner a separate room. Where a garage has a large frontage space or if there are streets on two or three sides or maybe four sides, and this sometimes happens, it may be found desirable to have the stalls partitioned off and have separate doors opening directly from each room to the street or to a driveway.

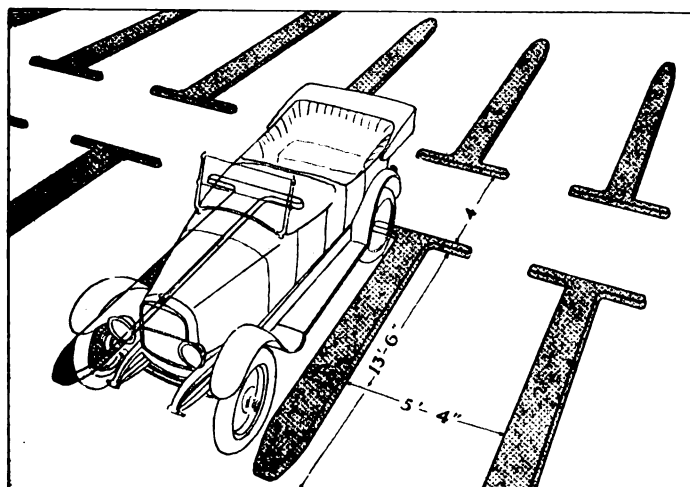
The driveway or aisle, Fig. 5, may or may not be roofed over if the garage is



Left—Fig. 1—Flatiron type of concrete guides used in the garage of the Hudson Motor Co., New York City

Above—Fig. 2—Corner of one of the floors of the Hudson Garage, showing the arrangement of the concrete guides and the rear wheel bumpers

Buy Liberty Bonds



Right — Fig. 4 — Simple form of bumper for use next to the wall to separate cars in the garage

Left — Fig. 3 — A form of raised concrete guide for garage floors which prevents damage by side scraping of cars and provides a clean walking space between adjacent cars, besides economizing in the quantity of concrete required as compared with the construction shown in Fig. 4

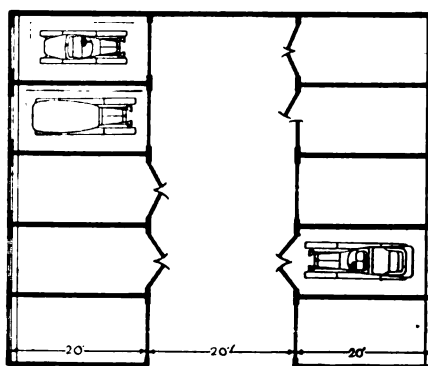
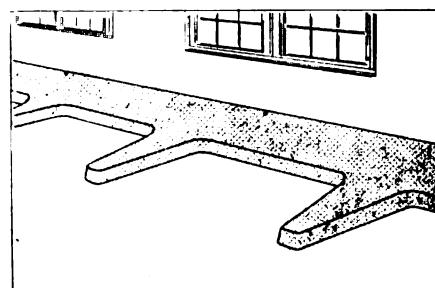


Fig. 5—The open driveway affords better light in the compartments and permits the construction of separate rooms

one story only. There are advantages on both sides. The open driveway affords better light in the compartments, but in a cold climate, at least, this would be more than offset by the difficulty with snow.

Each car space is a separate room and opens directly into a court and the front ones on the street. Each owner padlocks the doors on his street when he leaves it so that it is impossible for anyone to molest his car. Complaints of missing tools, damaged fenders, smeared paint and the like are unknown troubles in the garage.

At the same time the owner has all the advantages of the public garage, which are: Repair shop service, accessory and supply stores, light, heat, air, water and a wash rack where he may clean his car or have it cleaned, just as he likes. The

use of the wash rack is free, but the owner is charged for any washing done by garage help.

The individual room construction takes up a little more room in that a fair amount of walking space is required all around the car and this is not so necessary where cars are stored in the usual way.

However, there is disadvantage as far as cost goes and that is that the space usually required for an aisle is out in the open and therefore building material is not required for this area so that this saving probably offsets the expense of the extra material required in the extra spaces required for the individual construction.

If individual spaces are used in the ordinary garage it is advisable to have a heavy wire partition instead of one of

brick or plaster, as this is cheaper and takes up less room. The extra space called for by the individual construction and the increased expense are also slightly compensated for by the fact that a locker is not necessary. Inasmuch as the whole space is under the owner's lock and key, he is safe to leave his loose belongings scattered around his compartment.

Headlamp Tests for Glare

NEW YORK, March 14—In order to obtain accurate data which might be the basis for reasonable uniform legislation covering automobile headlamps, the Lighting Division of the Standards Committee of the Society of Automotive Engineers and the Committee on Automobile Headlights of the Illuminating Engineering Society held a series of tests on the night of March 5. These tests had as their object to obtain reliable data covering the following questions:

1—What amount of illumination is necessary to reveal a person, vehicle or substantial object at distances 150 and 250 ft. ahead of the driver's seat?

2—What is the maximum amount of light which may be allowed to reach the driver's eye from an oncoming car without producing intolerable and unsafe conditions of glare?

For the tests, a special apparatus was

designed by the Society of Automotive Engineers consisting of two pairs of regulation headlamps having commercial bulbs, reflectors and plain front glasses. These were connected in parallel in a series circuit consisting of the lamps, an adjustable resistance and an ammeter.

The test, for which between 50 and 60 observers volunteered, consisted of adjusting one pair of headlamps, by means of the rheostat, until the observer was just able to pick up the object, which was a man walking across the road at 150 ft. The test was repeated for 250 ft.

The lamps representing an oncoming car, 100 ft. distant, were then turned on, and with the lamps corresponding to those on the observer's car as he had last adjusted them to pick up the object at 250 ft., the observer varied the intensity of the lamps on the oncoming car until such brilliancy was obtained as in his opinion was compatible with safe driving.

Readings were taken, giving the current draw, as the observer indicated he had picked up the various objects. These will be translated into foot candles at the objects and the averages obtained will serve as the basis of such recommendations as may be made.

Westinghouse Buys Service Company

DETROIT, March 14—The Auto Electric Service Co. has been sold to D. W. Burke, service manager of the Westinghouse Electric & Mfg. Co., for a consideration in the neighborhood of \$18,000. The service company has been doing general work on automobile starting and ignition apparatus, as well as handling the official service for the Westinghouse, Auto-Lite, Bijur, Dyneto, Connecticut, Heinze, Springfield, Atwater-Kent, Berling Magneto and other electrical systems.

Repairshop Shortcuts

From The Motor World Roadman

NO. 1592—GASKET RACK

Probably the most convenient way to carry gaskets and other small parts, which may be hung on nails, is on a rack made of several small hinged doors, as shown. Each door consists of a thin board about 1 x 2 ft. and $\frac{1}{2}$ in. thick. The hinges are simply two screw-eyes placed in the edge of the door, top and bottom, and corresponding ones in the central wooden wedge which carries all the doors. Each door is retained by slipping a curtain rod through the four screw-eyes. Such an arrangement is cheap and easy to make and allows many gaskets to be housed in a small space, yet every gasket is almost instantly accessible.—Harry A. Tate, Superintendent, A. W. Haile Motor Co. (Studebaker), Buffalo, N. Y.

NO. 1593—CRANKSHAFT WRENCH

Time may be saved and skinned knuckles prevented when scraping in bearings on Continental motors by using the wrench shown when turning the crankshaft. It consists of a piece of $\frac{3}{4}$ in. wrought-iron bent U-shape and with the ends turned at right angles to engage the holes in the crankshaft flange.—G. A. Boyd, Fred Swanson Co., Champaign, Ill.

NO. 1594—AXLE TUBE REMOVER

Axle tubes which are pressed into the central housing may be removed by the device shown. A long, threaded rod about $1\frac{1}{2}$ in. in diameter is placed inside the tube to be removed. A sleeve just slightly smaller than the tube is placed over the rod, then the shoulder piece to support the pressure on the rod is put in place and the nut is turned until the axle is forced out. A new tube may be pressed in with an arbor press or this tool may be used with slight modification. The shoulder is placed just to the left of the sleeve, all other parts remaining in the same relative positions as they are now. Then the end of the rod which extends through the tube is drawn up tight with a nut, when the tube may be forced in by turning up on either nut.—E. Hempel, Overland Branch, Buffalo, N. Y.

NO. 1595—DELICATE SHORT TESTER

Testing for elusive short circuits or drying out oil-soaked wires is the func-

\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling print it in capital letters with your pencil.

tion of this unusual but simple apparatus consisting of three 110-volt 200-watt tungsten lamps mounted in parallel on a lamp board. In series with this circuit are the two test wires, so that when the points are brought together the lamps light. The lamps are painted black so that the intense light they give will not prove annoying. Suppose one of the coils on a generator was oil-soaked. The test points, when brought together, would complete the circuit, a sufficiently heavy current flowing through the coil to heat it and thus evaporate the oil. Inasmuch as the heat might also be sufficient to damage the insulation, the wire should be carefully shellacked after this operation. Short circuits, with this powerful testing apparatus, are indicated by vigorous sparks, or the heavy current may burn the cause of the short circuit away.—E. Hempel, Overland Branch, Buffalo, N. Y.

NO. 1596—BATTERY LIFTING STRAP

The battery may be lifted in or out of the car with one hand with this device. Usually the job requires both hands, but even then it is difficult, owing to the fact that there is not always sufficient room to properly grasp the battery handles. It is made by fastening a leather strap 1 x 12 in. to two check rein catches, which

may be purchased in any harness store.—H. P. West, Brumbach & Latimer, Ennis, Texas.

NO. 1597—CYLINDER HEAD LIFTER

A wrench for lifting cylinder heads may be made out of a piece of $\frac{3}{8}$ -in. stock, with one end bent in an eye to form a handle and the other end threaded into an old sparkplug shell which may be screwed into a sparkplug hole in the cylinder head.—C. C. Spreen, Flint, Mich.

NO. 1598—ADJUSTABLE GEAR PULLER

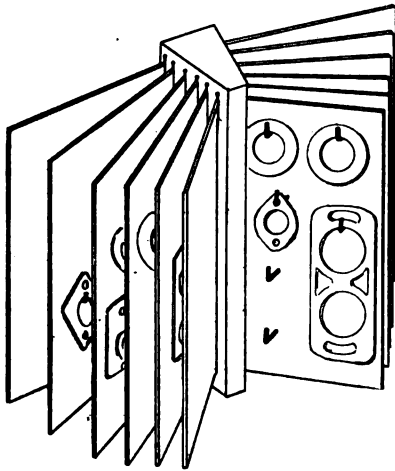
An adjustable gear puller of unique design is shown herewith. It may be used with either two or three jaws. The body of the puller consists of a thick steel disk finished with two grooves the same diameter as the pivot pins in the puller jaws. Slots are then cut as shown. The jaw pins may rest in either the inner or outer circle, thus giving adjustment for a large or small gear.—E. Hempel, Foreman, Overland Branch, Buffalo, N. Y.

NO. 1599—GIANT CARBON SCRAPER

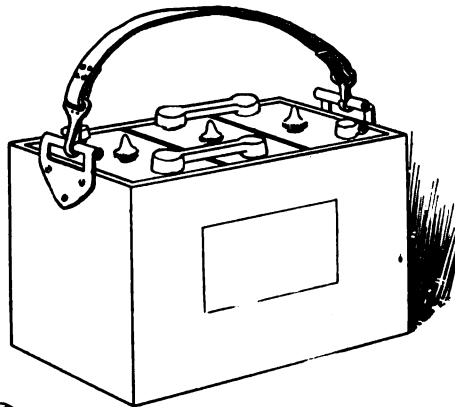
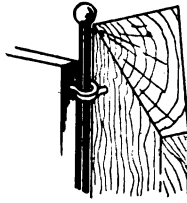
Quite often engine bearings are taken up or pistons are removed about the same time that carbon is taken out. In which case probably the easiest and most effective method of removing the carbon is by the use of a giant scraper by means of which the combustion chamber may be reached from below. To prevent the particles of carbon from dropping into the eyes of the workman a ventilated box with a glass top in which he can place his head is desirable. The combustion chamber may be illuminated with a small bulb inserted through a valve opening or spark plug hole.—A. Selzer, Foreman, Buick Motor Co., Buffalo, N. Y.

NO. 1600—SHOP DOOR AND WINDOW

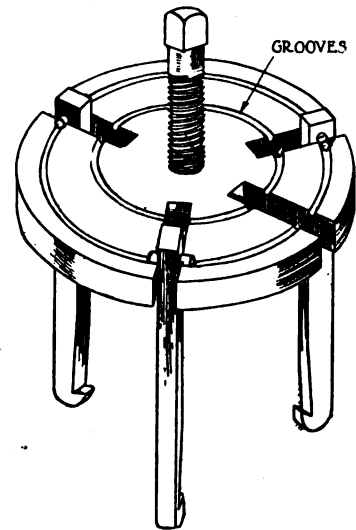
A combination window and door between shop and stockroom satisfactorily solves the problem of communication between these two rooms. The lower half is a door and the upper half is a regular window with counterweights. When articles are delivered to one of the workmen it is merely necessary to raise the window. A small shelf on top of the door facilitates the transfer of articles back and forth.—Kane Cadillac Co., Buffalo, N. Y.



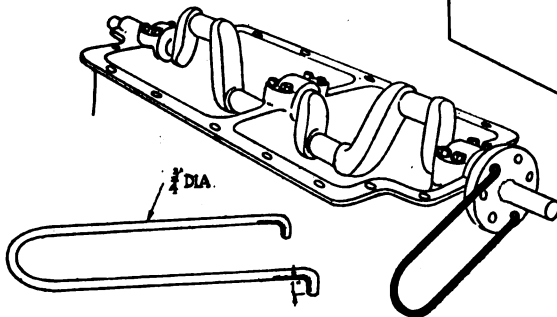
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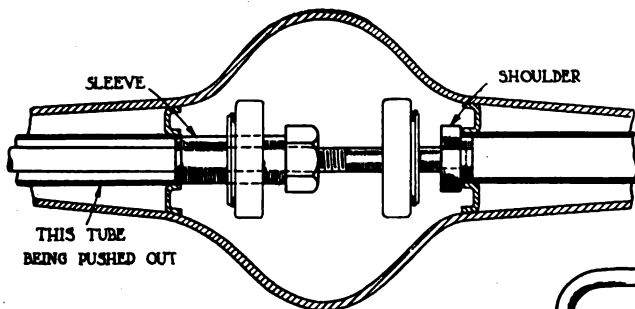
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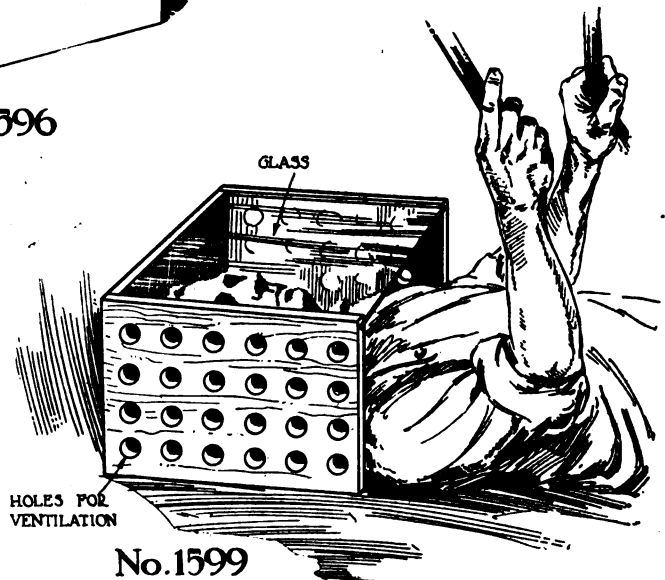
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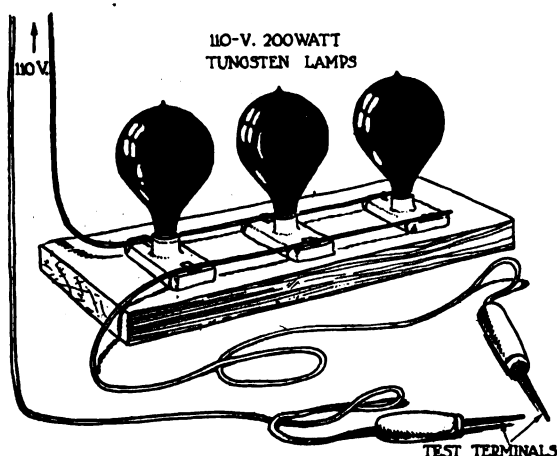
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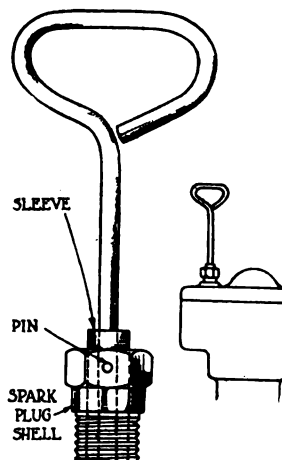
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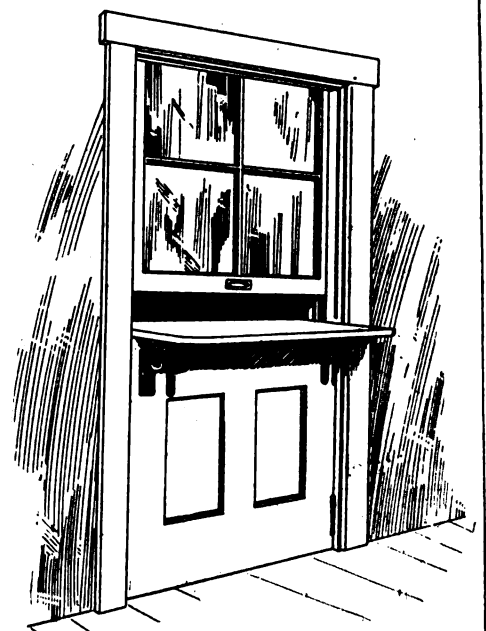
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No. 1595



No. 1597



No. 1600

*A Department of***BETTER MECHANICS***No. 60 (Continued)***Maintenance and Adjustment
of Paige Cars****7—Electrical System**

THE distance between the breaker points should be .015 to .020 in. The spark plug points should be .025 to .030 in. If the engine misses when the car is accelerated or at extremely high speeds, the points of the spark plugs are too wide, while if it misses when idling the gap may be too narrow.

The removal of the distributor is accomplished by taking out the small locating screw on the outside of the gear housing and which is directly in line with the center of the distributor shaft. Disconnect the distributor shaft and then the unit may be raised out vertically.

To replace, first turn the engine over until the pointer on the flywheel is even with the line of the ring which is marked T. C. 1 and 6, and means top center 1 and 6. Remove the valve tappet cover and observe the positions of the valves on Nos. 1 and 6 cylinders. Next trace the wire from the spark plug of this cylinder to the distributor head and turn the segment on the top of the distributor shaft, Fig. 5, in the direction of the arrow until it is practically in line with the pin in the distributor head which connects to the wire traced. With the spark lever fully retarded, set the points so they are just ready to break.

A short-circuit in any part of the system if not noticeable on the inspection of the various wires can be readily located by the use of the test lamp. This consists of an ordinary 7-volt lamp, a lamp socket and two strands of insulated wire about 6 ft. long.

To test the wiring for a short-circuit, remove all of the fuses from the lighting switch and disconnect the wire from the negative (—) terminal of the battery. Connect one end of the test lamp wire to the negative (—) terminal of the battery. Touch the other end to the frame of the car.

The test lamp should light if contact is made, showing that the positive side

Part 1 (Last Week)

- 1—Crankshaft and Bearings
- 2—Pistons and Rings
- 3—Valve Mechanism
- 4—Timing Gears
- 5—Lubrication
- 6—Removal of Engine

Part 2

- 7—Electrical System
- 8—Carburetion
- 9—Cooling System
- 10—Clutch Adjustment
- 11—Gearbox
- 12—Axle Adjustments

of the battery is properly grounded to the frame. Keep one test lamp terminal in contact with the battery negative (—), touch the other test lamp terminal to end of wire which was previously disconnected from the battery. If the test lamp lights, it indicates that one of the wires leading from the negative (—) battery wire to the dynamo is shorted at some point or that the wire leading from the lighting switch to the horn is grounded or again the ignition circuit might be at fault.

To determine which of these is causing the trouble, first disconnect the wire leading from the back of the ammeter to the ignition switch. If the test lamp goes out the short circuit is in this wiring.

Next remove the wires from the dynamo terminals "B" and "1" and touch the test light terminal to these connections. If the lamp lights, it would indicate that the dynamo was at fault. In case the dynamo is in good condition, try the ends of the wires which were

disconnected from the dynamo. When the damaged wire is located it should be inspected closely and the damaged insulation repaired by winding it with tape.

In case the short circuit appears to be between the lighting switch and the lamps connect one terminal to the negative (—) battery terminal and touch the other test terminal to the terminals of the wires leading from the lights. When the damaged circuit is located the test lamp will light. One of the most frequent causes of a short-circuit in the lighting system is that the wires become frayed where they connect to the lamp sockets.

The lamps used on the Model 6-31 are manufactured by the Gray & Davis Co., and are equipped with 7-volt bulbs. The headlights are equipped with the 16 cp. bulbs, the dimmers with 4 cp. bulbs, and the rear lamp with a 2-cp. The use of bulbs of different voltage or higher candle power is not recommended. The focus of the headlights is adjustable.

To focus a lamp, it is necessary to move the lamp bulb forward or backward to the point where the reflected rays give the desired lighting effect. Remove the lamp rim and glass to gain access to the focus adjusting screw at the top of the reflector. The best place to focus the lamps is on a dark road by directing the rays of light against a wall about 100 ft. from the car. The lamp brackets are set at an angle with the lights projecting about 300 ft. from the ground at 100 ft. ahead of the car.

In case one of the bulbs grows dim the bulb should be changed. If the new bulb does not improve this condition, test out the wire of this lamp circuit from the lighting switch to the lamp. Examine the connector at the end of the wires for a short-circuit.

If one of the lamps flickers, inspect the connections at the lighting switch and at the lamp. If this does not im-



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prove the conditions, examine the terminals inside the headlight. If all of the lamps flicker, look for a loose connection in the wiring leading from the battery to the lighting switch. There may be a damaged wire in the system which is coming in contact with the frame of the car as the car vibrates.

The cut-out terminals L and B may be loose or the grounding screw between these may be loose. There may also be a short-circuit in the ignition wiring. This, however, would cause the motor to stall.

The ammeter reading should remain practically constant for any speed, indicating that the regulating feature of the regulator cut-out is controlling the output properly. Otherwise it shows that this part of the apparatus is out of adjustment.

If the ammeter shows discharge with the engine stopped, the cut-out points are stuck together.

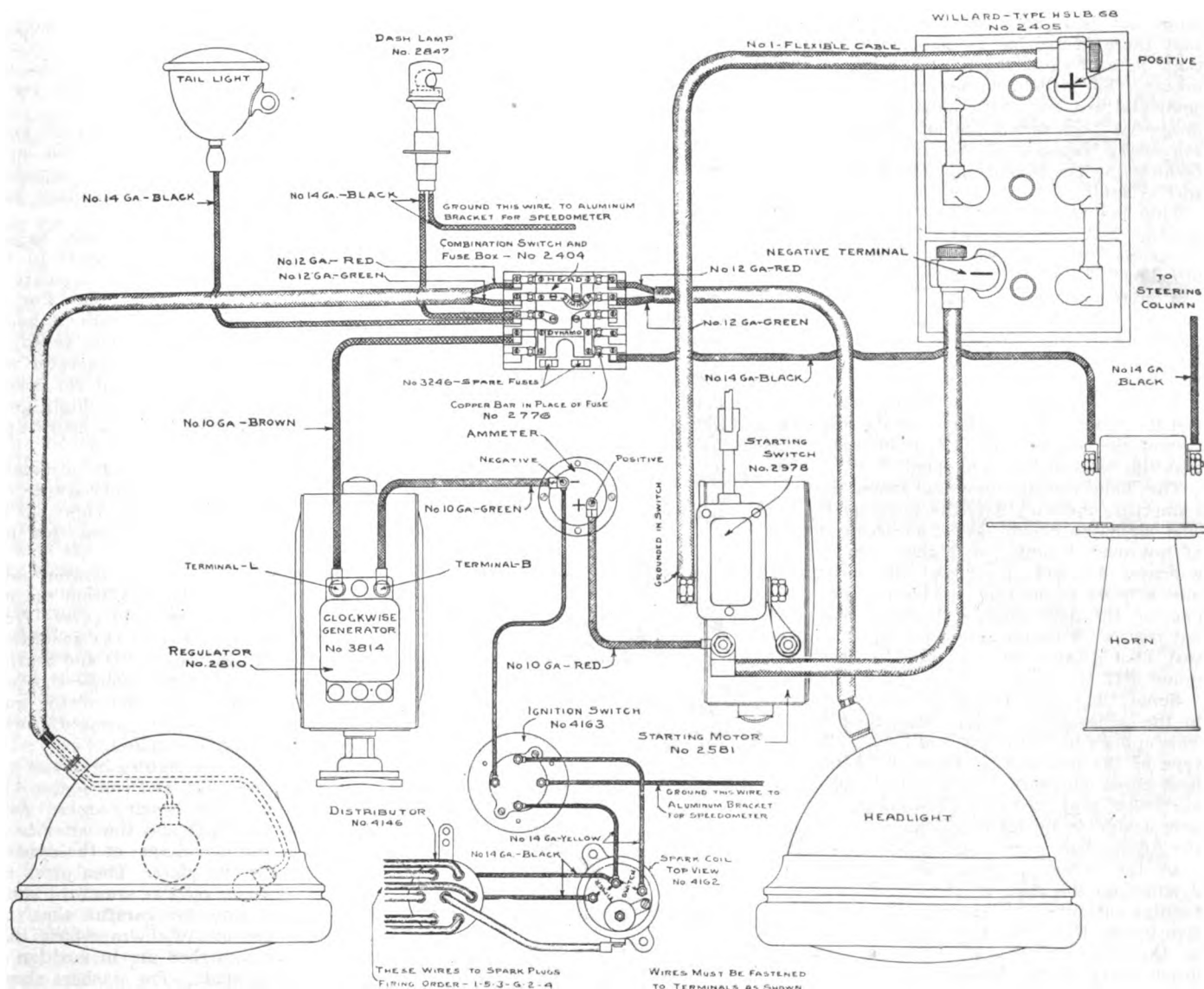
If the generator fails to generate, the ammeter hand will remain at zero when the engine is running at normal speed. To ascertain whether this is so, turn on the lights, run the engine at a speed equivalent to 12 m.p.h. and disconnect the wire from terminal B at the regulator cut-out. If the lights go out, the cut-out is at fault.

Next examine the brushes. Note whether they make good contact with the commutator, see that all wires are firmly connected and that the commutator is clean and bright. If it is dirty, clean it by holding a cloth slightly moistened with oil against it while it is operating. See that the grounding screw between the terminals B and L is securely

tightened. The screw should have a lock washer.

Next connect the short piece of insulated wire from the terminal A to the terminal B while the engine is running at a speed of 12 m.p.h. and the lights are off. If this shows charge on the ammeter, the cut-out feature of the regulator is at fault, but if no charge is indicated, it shows that there is an open circuit at some point in the system, such as the brushes not making good contact, the battery connections loose, the ammeter terminal connections loose or the dynamo circuit open.

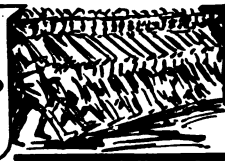
If the ammeter indicates discharge, reduce the engine speed to 9 or 10 m.p.h. and connect another wire from the dynamo terminals F and F1 to terminal A. If the ammeter then indicates charge the regulating feature of the regulator



When making repairs to the electrical system, or tracing for any real or imaginary faults, the wiring diagram should be very carefully examined. The location of the various wires and their connections are all clearly indicated



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cut-out is at fault, but if the ammeter still shows discharge it means that the field circuit of the generator is open or that the armature is short-circuited. In either case the generator should be forwarded to the nearest Gray & Davis service station.

When the generator or the cut-out is removed for repairs the lights may be operated from the battery by removing the terminal wires from B and L and connecting them together with a small piece of wire, then the joint should be taped.

If the trouble is still unlocated, remove the leather disk between the generator and the pump shaft and take off the wire from terminal B and attach it to terminal A. Under these circumstances the machine should operate as a motor if everything is all right and should run at about 300 r.p.m. The ammeter showing discharge of from 3 to 4 amp., but if it does not run, it shows that there is trouble in the cut-out or that there is an open circuit in the generator. Turn the armature slowly one complete turn, and if the ammeter shows discharge this would indicate that the regulating feature of the cut-out was feeding the circuit but that the dynamo was at fault.

This can be tested out further by removing the cut-out and attaching a piece of copper wire across the three terminals F1, F and A, and noting the reading on the ammeter. There will be an excessive flow of current with a short-circuit and the ammeter needle will fluctuate and the speed of the generator will be very low.

In case the armature will not rotate and the internal connections and the contact of the brushes are O.K. it indicates that the field circuits are open.

The field circuits may be tested by connecting the wire B to the terminal F. The ammeter should show a discharge of not over 1 amp. A higher reading indicates a short-circuit and the lower one a poor connection or high resistance in the field. If the ammeter does not register it shows an open field. This test should also be repeated for terminal F1.

Some time ago a change was made in the generator and regulator cut-out. This applies to types 2-40 and 2-50. The type of the machine is indicated by the first three numbers of the serial number. An easy way to distinguish the new design is by its nickel finish, since the former had a black enamel.

In the terminal connections of the dynamo on the type B and the type D regular cut-out, A connects to the negative brush, F to the lower field coil, F1 to the upper field coil. The positive brush holder of the dynamo is connected or grounded to the dynamo frame, the wire leading to the lighting switch con-

nects to terminal L, which is negative and is connected to the series winding of the regulator cut-out at a given distance from the end. The terminal B is also negative and is the end of the regulator cut-out series winding; this connects to the storage battery and the ignition switch to the ammeter.

The type B regulator cut-out is adjustable, but considerable apparatus is required to make correct adjustment. Consequently no attempt should be made to adjust it. It should be removed and forwarded to the nearest branch or service station of the Gray & Davis company.

The ammeter should show "charge" above 10 m.p.h., and when the dynamo is at rest and the lights off it should return to zero. With all lights on, the ammeter should register 5 to 7½ amp. In case the hand does not return to zero, disconnect the negative wire from the battery and note the number of degrees the pointer is off from zero. This variation should be allowed for when making readings.

In case the ammeter is found to be burned out, the system should be tested carefully, short-circuits repaired and the ammeter returned to the nearest Gray & Davis service station. The car may be used without the ammeter by connecting the three terminals together with a small bolt. The terminals should be wound with tape to insulate them.

The generator should receive 8 or 10 drops of oil at each end once a week. Care should be taken not to get water on the generator.

The following information is given as a guide in making tests: Car at rest with lights out, ammeter should show a discharge of 5½ to 7½ amp. Car run-

ning below 6 or 8 m.p.h. with lights on should charge 5½ to 7½ amp. Car running below 6 or 8 m.p.h. with lights off, discharge 1 to 2½ amp. for ignition. With the car running 10 to 12 m.p.h. or above with lights off, charge should be 10 to 14 amp.; with car running 10 to 12 m.p.h. or above with lights on, the charge should be 2½ to 7 amp. This is based on a lamp equipment of two 16-cp., 7-volt headlights, two 4-cp. dimmers and one 2-cp. rear lamp. Bulbs of different voltage or higher candle power should not be used.

To determine whether the generator is working properly observe the ammeter with the lights off and the engine running slowly, then increase the engine speed gradually. If the ammeter shows only a slight discharge of about 2 amp. it indicates that the cut-out feature of the regulator cut-out is closing at the proper time. As the engine speed is increased the current should increase.

The type E regulator consists of two coils, one the regulator coil E and the other the cut-out coil; the former regulates the voltage.

The regulator coil is a vibrating type, and it reduces the field strength automatically as the speed of the armature increases, thus keeping the voltage constant.

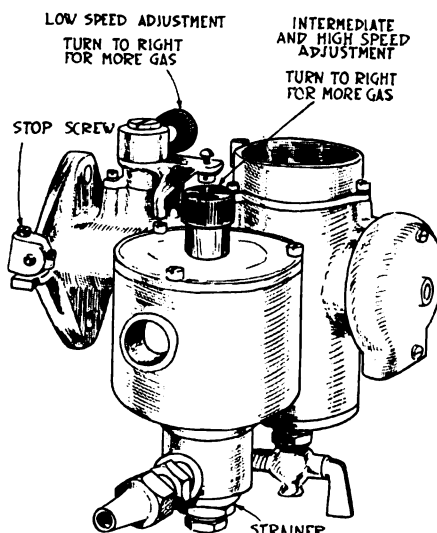
A higher charging rate may be obtained by turning the screw C to the right. Do not attempt to regulate it to charge more than 15 amp. For all ordinary service 10 amp. without lamps is sufficient. It is impossible to adjust the regulator so that the generator will charge more than 10 amp. at car speeds of less than 12 m.p.h. on high gear. When adjusting the regulator operate the car at 18 to 20 m.p.h.

The generator bearings are adjustable by removing the lock D and turning the bearing adjusting A to the right till all play is removed, then loosen this nut one notch.

To remove one of the generator bearings, first remove the unit from the engine; next remove the two covers from the commutator and from the generator; take off the locking device D and bearing adjusting nut A. Next remove the four screws from the drive end of the generator and pull out the armature with the end plate and coupling.

Next place the armature in a vise and remove the coupling and end plate. Also remove the inner bearing races from the armature shaft and the outer bearing races from the frame of the dynamo and from the end plate. Then press the new inner races on the armature shaft.

In doing this be careful that the pressed steel oil retainers which have felt washers attached are in position on the armature shaft. The washers should be shellacked and placed on the retainers and the retainers located concentric with



The carburetor is a Rayfield model M side outlet type. There are but the two adjustments indicated in the illustration



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the armature shaft before the inner ball races are pressed down to hold them in position.

Next press the new outer races into the end plates and into the commutator end of the frame. Also be sure that the steel oil retainer and the felt washer are located in the end plate, and that the outer bearing race is pressed in solidly.

Next insert the armature of the generator frame with the ball retainers and balls on the shaft. Care must be taken not to damage the brushes. The armature may be entered part way and the brushes lifted. Then the armature may be pushed in position and the brushes lowered in contact. Next insert and tighten the four screws in the drive end plate, then tap the outer bearing race on the commutator very lightly until all the play in the armature shaft is taken up.

In case there is any doubt as to the tension of the brush springs this may be gaged with a small spring scale. The brush pressure should be adjusted between $1\frac{1}{2}$ and 2 lbs.

The position of the brush holder yoke is adjustable, and if it is removed its position should be marked with a scratch awl.

The Bendix drive may be removed from the armature shaft by loosening and driving out the pins at the outer end of the shaft.

8—Carburetion

UNLESS the dust which accumulates in the auxiliary air valve of the carbureter is cleaned out occasionally it will cause the air valve to stick partly open, causing the motor to stall occasionally, and then it is impossible to obtain proper adjustment on the low speed.

It can be cleaned readily by removing the auxiliary valve seat which has a guide chamber for the air valve fastened in the center. This is attached to the right side of the carbureter by two screws. A dry cloth may be used for removing the dust and then the part should be lubricated with kerosene.

Another method is to squirt kerosene into the carbureter to the high-speed air valve when the motor is running slowly. This is not as good a method as the other, however.

In case it becomes necessary to adjust the carbureter, first be sure that there are no obstructions in the gasoline line, that the gasoline shut-off valve is open for the free passage of gasoline to the carbureter, and that the connection of the carbureter to the cylinder is tight and free from any air leaks; that the valves and ignition are correctly timed and that there is a hot spark and even compression on all cylinders.

The low speed adjustment should be turned to the right or left until the motor runs properly at low speeds with

the spark fully retarded and the throttle closed.

If the motor runs too fast with the throttle closed, turn the stop arm screw A to the left until the speed is reduced to the desired point. This should be set at a position so that there is no liability of the motor stalling if the throttle is closed quickly when the car is in operation.

The high and intermediate speed adjustment is reached by removing the elbow connected to the hot air tube to the carbureter and is made by turning the screw which is located in the air valve to the right for a richer mixture and left for a leaner mixture.

Do not move this screw more than one-eighth turn at a time, as the adjustment is very sensitive. This should be set to a point where the motor will accelerate smoothly without missing when the spark is fully advanced. This adjustment will determine the fuel economy so it should be set as lean as possible while still retaining good acceleration.

The gasoline level in the float chamber is adjustable and should be set so that the gasoline raises to the center of the small glass in the front of the float chamber.

The primer is operated by the dash adjustment. When the adjustment is raised a small finger attached to the lower end operates a small plunger valve in the primer passage and allows a flow of gasoline directly into the intake passage. This, however, will not be effective unless the throttle is entirely closed. No attempt should be made to operate the motor with the primer open.

Raising the dash adjustment part way enriches the mixture considerably, and raising it all the way operates the primer. In case the carbureter is removed at any time care should be used in replacing it so that the dash adjust-

ment wire is connected to the carbureter in such a position that the primer valve will be open when the dash adjustment is pulled all the way up.

9—Cooling System

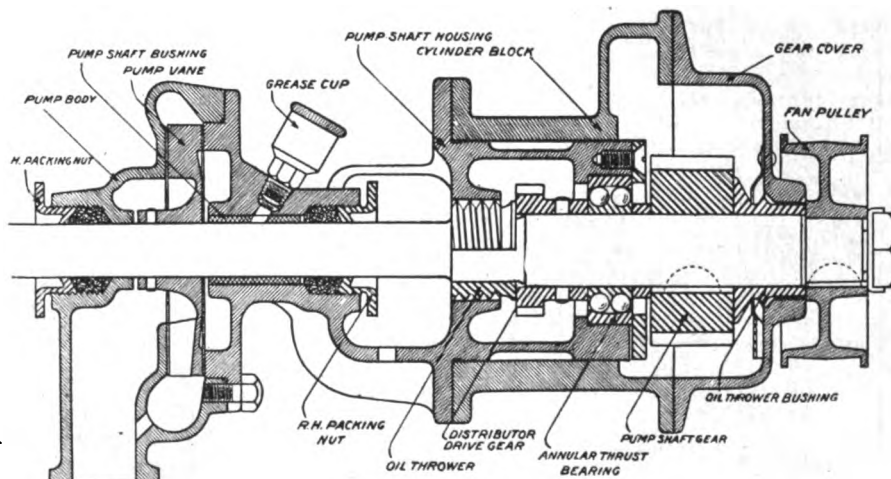
TO remove the water pump assembly it is first necessary to take off the fan pulley, which is held by a nut on the end of the pump shaft and a Woodruff key. It is not a tight fit, however, and a puller is not necessary to remove it. Disconnect the water hose connection, loosen the generator from the bracket which supports it, and disconnect the flexible coupling between the pump shaft and the generator, leaving the leather disk attached to the generator. Next remove the distributor assembly, after which the entire water pump assembly with the housing and drive gear may be removed from the motor by sliding it to the rear.

The water pump drive gear is a pressed fit on the shaft and is held by a Woodruff key. A double row ball thrust bearing is also a pressed fit and must be removed towards the front end of the shaft. The distributor driving gear is held by a No. 2 taper pin. The pump vane is a light drive fit and is removed toward the rear end. It is held by a No. 1 taper pin. If a new vane is installed, care should be taken that there is a clearance between the pump vane and the body of the pump when it is assembled in position.

10—Adjustment and Care of Clutch

THE clutch is a disk with seven driving and seven driven members. It is provided with cork inserts and runs in oil. It should be cleaned occasionally with gasoline and then filled with a mixture of oil and kerosene, one part kerosene to two parts cylinder oil.

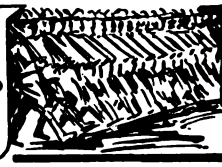
New corks may be inserted in the disks.



The water pump is of the impeller type and may be readily removed. Note the packing boxes at each side. These should be well-lubricated and tight to prevent leakage



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by the use of a special tool after the corks have been soaked in warm water to make them pliable. They are trimmed off so as to leave a projection of about $\frac{1}{32}$ in. on each side and then they are ground to an even surface on the disk grinder.

A more convenient method for the average repairman is to use fine sandpaper. The disks should be trued by rubbing them on a flat surface which has a very thick coating of prussian blue or lamp black. The cork inserts should not project too far over the disk or the clutch will drag; $\frac{1}{32}$ in. is the maximum.

The clutch spring is not adjustable; there is an adjustment on the clutch pedal, however. The position of the pedal will shift toward the floor board after the clutch has been in service a short time because the inserts when brought under the pressure of the clutch spring will compress slightly. If the pedal is not adjusted, it will cause a continuous pressure against the clutch and eventually produce slipping. There should be $\frac{3}{4}$ in. clearance between the clutch pedal and the upper side of the floorboard. This is adjusted by loosening

the lock nut at the end of the turnbuckle.

The levers of the clutch pedal may be changed to suit the requirements of the driver, there being two holes in the lever on the clutch yoke shaft for this purpose. Under ordinary circumstances this should be connected to the inside hole, but if the car is to be driven by a lady the outer hole may be used.

To remove the clutch it is first necessary to take off the gearbox, then the cap screws which attach the clutch plate cover to the drum of the flywheel are removed and the entire clutch assembly may be taken out.

To reassemble the clutch it is necessary to compress the clutch spring, which can be accomplished by using two $\frac{5}{16}$ -in. nuts about $3\frac{1}{2}$ in. long threaded full length. They should be inserted in two opposite holes in the clutch drum, then take the driven clutch member and install the disks on it—a plain disk first and then a cork disk and so on.

Place the clutch plate over the hub of the driven clutch member and insert the spring over the front end of the hub of this part. The lugs on the outer edge of the driving disk should then be run

in line. Next coat the gasket on the clutch plate thoroughly with shellac and allow it to dry until it becomes sticky.

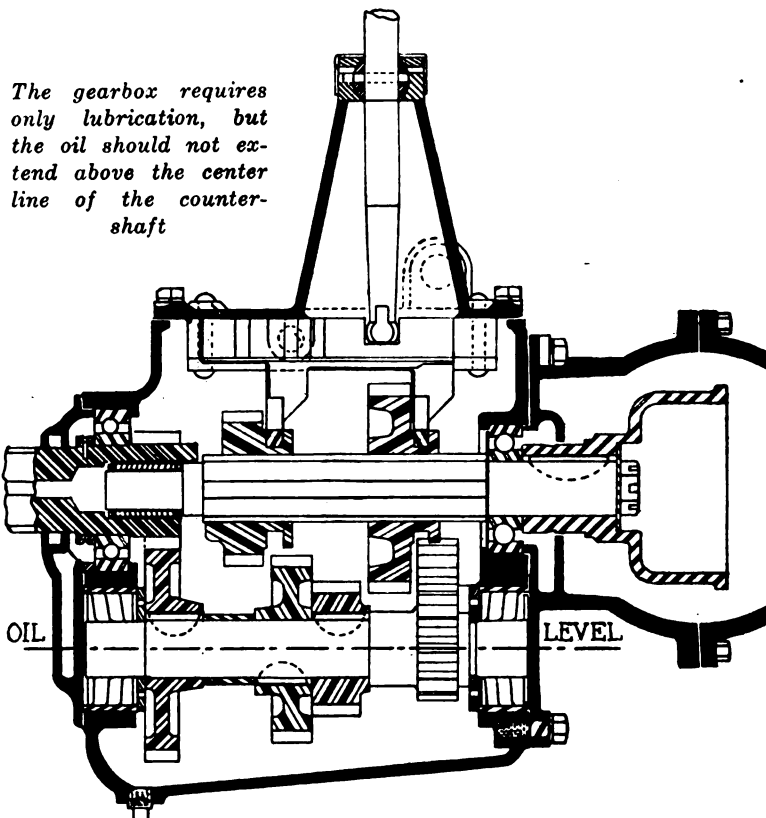
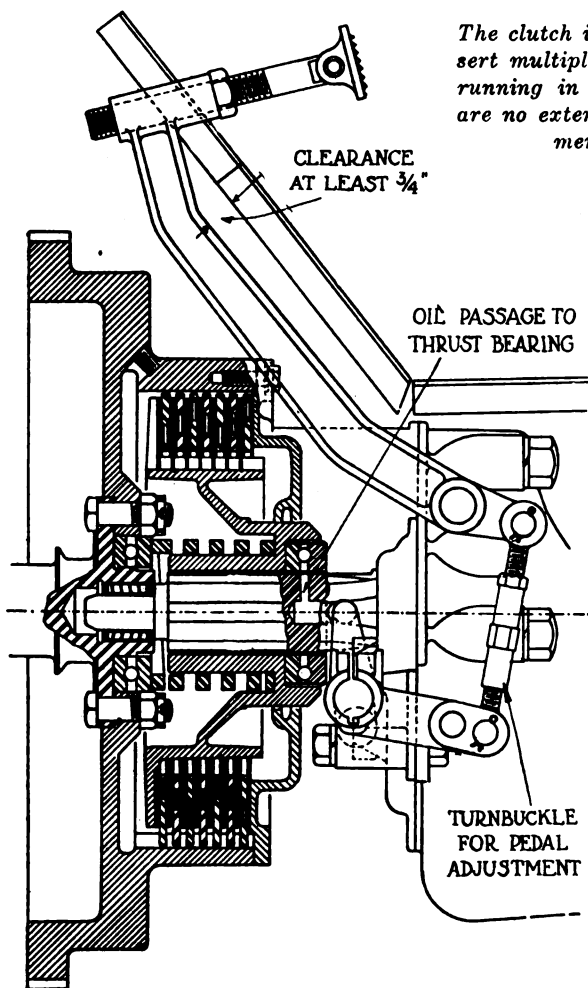
The clutch assembly may be entered into the clutch drum of the flywheel and the two studs, above mentioned, inserted in the drum and used to draw the clutch into position. Finally install the cap screws which hold the clutch plate cover to the flywheel, and after removing the two studs tighten all of the screws firmly.

It is sometimes necessary to remove the main drive gear from the front end of the transmission and use it as a guide to be sure that the clutch is in alignment with the Hyatt bearing in the rear end of the crankshaft which supports the front end of this main drive gear, otherwise there may be difficulty in getting the transmission into place.

11—Removal and Replacement of Gearbox

DOWEL pins are provided either side of the transmission to insure its alignment. Sometimes, however, it is necessary in squaring up the transmission with the motor to insert a thick shim on one side; consequently it is important when removing the gearbox to notice whether there are any shims, and if there are, they must be replaced when the unit is put back.

The countershaft is carried on two Hyatt roller bearings. The bearing linings are a pressed fit in the case, and





Buy Liberty Bonds



when they show wear they may be replaced at slight expense. The end thrust of this shaft is carried by two hardened steel washers and a slight amount of end play is of no consequence.

The gearbox will hold about 2 qts. of oil and should not be filled above the center line of the countershaft. There are two oil rings provided on the main transmission shaft, and drains carry the oil back to the countershaft bearings. Additional provision to prevent the oil washing out through the bearings of the main shaft is made by thin steel washers which cover the inside of these bearings.

12—Removal and Replacement of Rear Axle

To remove the rear axle on the 1916 models first take off the cap on the ball and socket joint at the front end of the torque tube, then remove the clevis pins at the rear end of the four brake rods and raise the frame of the car.

When the weight is removed from the axle take off the caps from the hangers which attach the rear springs to the axle tube. In reassembling care must be taken to have the two balls of the universal joint properly engaged with the front part.

The old oil should be removed and the housing refilled once every 2500 miles.

Most of the trouble from oil leakage on the brakes is due to the housing being overfilled. There are felt washers at each side of the castellated nuts, E, which prevent the oil from leaking out along the axle shafts. The hub bearings should be oiled every 1000 miles.

When the bearings of the pinion shaft require adjustment, the fact will be noticeable by a humming in the rear axle when the car is coasting at from 15 to 25 m.p.h. To determine the fit of these bearings remove the cover on the central part of the rear axle housing and place a short pinch bar under the nut on the rear end of the pinion shaft.

If any play is noticeable it will be necessary to remove the pinion assembly from the axle in order to make the adjustment. This is accomplished by dis-

connecting the universal joint as mentioned above and loosening the nuts on the radius rods.

These rods extend from a bracket on each of the axle tubes to a bracket located centrally on the pinion shaft tube. Next remove the cap screws which attach the pinion shaft housing to the rear axle housing, which will permit the pinion shaft assembly to be removed toward the front of the car.

After the pinion shaft assembly is secured in a vise remove the rear half of the universal joint from the pinion shaft. Next remove the locating cap B, which will expose the pinion shaft bearing sleeve, which is castellated and has a right hand thread. It can be turned by inserting a screwdriver, and after the thread has been disengaged the pinion shaft bearings and sleeve may be removed toward the rear.

Wear may be adjusted by loosening the lock nut T and turning the adjusting nut U until the wear is taken up. The lock nut should then be tightened in this position and locked by clinching the lugs on the lock washer L. The adjusting sleeve C acts as a spacer between the two bearings, and these bearings are mounted directly in the pinion shaft housing.

The position of this sleeve in the pinion shaft housing also determines the mesh of the spiral bevel pinion J in the spiral bevel gear. In reassembling the pinion shaft it is advisable that the adjusting screw be turned to the same point as it was originally. Care should be used that the felt washer H and the felt washer retainers R are not jammed in any way when the shaft is passed through them. The rear part of the universal joint can then be assembled on the pinion shaft and the entire assembly attached to the axle housing.

The mesh of the bevel pinion and the ring gear should then be observed. The outer ends of the teeth should be meshing even and have a clearance of about .003. In case the teeth do not come exactly in line with the outer edge the lateral position of the pinion shaft may be changed by turning the adjusting

sleeve C one notch in either direction. After the desired location is obtained, these may be locked by inserting the cap B and tightening the two cap screws which attach it to the pinion shaft housings.

In case the mesh of the gears is not properly adjusted they will be noisy. If extremely light or extremely loose they will be noisy both when the car is being accelerated and when coasting. If only a trifle too tight they will be noticeably noisy when the car is being accelerated or if a trifle too loose will be noisy when the car is coasting.

If adjustment of the pinion shaft by turning the adjusting sleeve C one or two notches in either direction does not improve the running of the car remove the cover on the rear axle housing and note the clearance between the teeth on the ring gear and pinion. Also inspect the thrust bearings at the ends of the differential assembly.

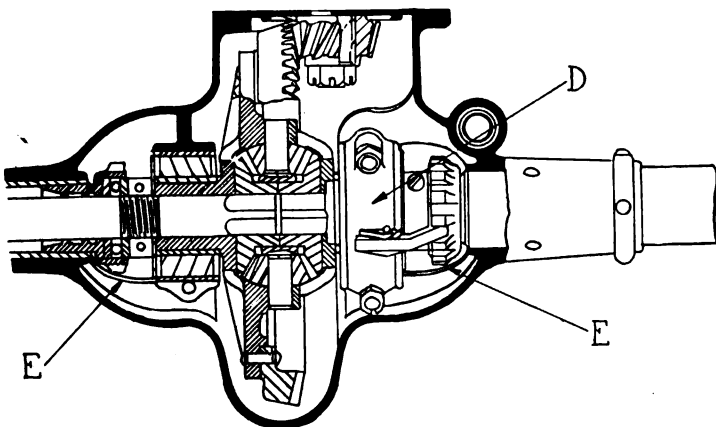
If there is any end play in the differential assembly and the thrust bearings are in good condition, adjustment may be made by removing the lock nut D and turning either of the castellated adjusting nuts E to the left.

However, if this adjustment leaves the mesh of the bevel pinion and gear too loose or too tight, the whole differential assembly may be shifted in either direction by turning the adjusting nuts E. These should be shifted the same distance and when properly located replace the locks and cotter pins.

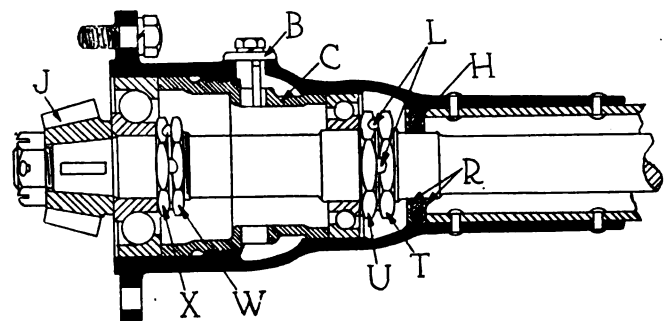
To remove the differential assembly it is only necessary to loosen one of the adjusting nuts E, the right one, till it clears the end of the housing.

To remove the axle shaft raise the end of the axle from which the shaft is to be removed, remove the cover from the axle housing and loosen the split collar on the shaft. This allows the shaft to be removed with the wheel attached. In replacing the shaft note that the edge of the brake drum does not rub against the supports of the external

(Continued on page 49)



After removing the adjustment locks indicated at D, the differential may be adjusted



Editorial Observation

BUY
LIBERTY
BONDS

The Democracy of Industry

THE whole world is fighting, spending money and lives, in order that democracy may have its place in the scheme of things.

Is there not room for a little more democracy in the motor car industry, and will not that democracy make the whole industry stronger, from the manufacturer on down through to the man who buys the car?

The factories have been the strong element in the industry. The weak element has been the dealer. This has not been true democracy, and the result has been that the industry has not on the whole been as strong as it should have been.

To-day, when strong elements at all points are required, the presence of the weaker element is sorely felt. Many dealers are feeling the blow of war-times, some are passing out, more will pass out. The strong will remain.

Had the industry from top to bottom been concerned with the building up of its several parts we would be to-day in a better position to weather the storm. Of course, we shall weather it, and some day the sun will shine again, but let us not go into the new period that is ahead of us encumbered with the old ideas that have failed to benefit us in the past.

Not enough factories have been concerned with developing strong dealers. Some—and they are many—have fought against those very things that make a dealer strong. They have aroused ire and resentment in many quarters. Dealers to-day are classed as loyal to their factories, but all the way through there is a rumble that has been growing for years, and its tone is not one of approval of all that the factories have done.

A leader who might arise and raise a cry of "Let us fight the factories and get our rights!" would at once be followed by an army that would astound those who have rested securely in the belief that the industry is founded on harmony, good-will and prosperity.

It is fortunate for the industry that the newly formed National Automobile Dealers' Association is guided by men who are not of this radical element, and who believe that harmony and co-operation can effect more than fighting.

Anyone who has traveled over the United States can cite countless examples of dealers who are not firm foundation stones for the industry. In a time of stress they are of minimum value to themselves or their factories. One reason is that they have not been made strong. One reason they have not become strong is that they have not builded on strong lines.

One reason that they have not so builded is that the factories have not looked with favor upon some of the methods that make strong dealers.

The dealer who is handling only one make of car has not realized full possibilities except in exceptional instances where his city is large and he has been able to do a big business.

To-day the dealer in one of these \$2,000 cars is carrying another line under another name. He has stepped down into another price class, and is adding to the volume of his business. He might have done the same with profit years ago. Perhaps he was not deterred by the disapproval of his factory, but the fact remains that many factories have insisted that their dealer should handle ONLY their cars. This has kept the dealer's volume down and prevented him from becoming big and strong. To-day we recognize this as a wrong plan of action.

This "exclusive agency" idea is one of restriction. It is not a part of general modern merchandising. True, it tends to make the dealer sell more of this particular car, and this may, to a slight degree, increase the factory's output; but it is only a whirlwind output, a cloud of sales in the air, which falls to the earth when the favorable wind ceases to blow.

Neither has the dealer been assured of permanency. Contracts are short-lived affairs and often of little legal standing. Dealers have spent thousands of dollars and part of their lives creating a home and a good-will for an agency, only to have their sole means of support yanked from under them at the whim of a factory's field representative. Obviously, this is unfair.

Some factories seem to have feared that the development of too great strength in the dealers might eventually permit the dealers to override the factories and dictate to the manufacturers. We believe this fear is somewhat exaggerated. We also believe some factories would be better off to-day had they taken a little more counsel with their dealers as to manufacturing practices.

Furthermore, a dealer is only human—as is the manufacturer. Neither honestly desires—nor should desire, and certainly **SHOULD NOT HAVE**—more than is fair. We do not believe any group of dealers would clatter up to a factory and play Bolsheviki.

But it does seem that there should be more of the democracy of industry. The factories should help make strong dealers. The dealers should help make strong factories. Until both sides become strong and sound the industry is running with a flat tire.

What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR

St. Louis Show Best Ever

Editor Motor World: We totaled up the official figures of the St. Louis show to-day and find on our cash receipts we are 66 ahead of last year and on dealer visitors we are 203 ahead of last year. In other words, our St. Louis auto show showed an increase in attendance over last year.

It was the most successful show, from a business standpoint, that we have ever had. There was more business done than at any previous show held here, and I have talked to almost every exhibitor who was in the building.

Business has been wonderful. We have been selling from two to four cars every day at retail since the show, and the country business is certainly coming along fine.—St. Louis Automobile Dealers' and Manufacturers' Association, Joseph A. Schlecht, President.

Suggestions for Opening New Place

Editor Motor World: As a reader of your Motor World for years I will ask your advice on some things for our new place here at Sac City, Iowa, that we will soon move into.

Please help us to get up our opening day.

Also our shop repair tickets.

Shall we make it a Ford garage only? We don't sell any but Fords.

We will have a very nice place we think, 132 x 46, two floors.

We have had a place at Lytton, Iowa, the past 8 years, and I will ask that you give me some good tips on a plan.—Low & Kurtz Auto Co., Sac City, Iowa.

Answer—We are pleased to give you such suggestions as we can for opening a new place of business.

We suggest that you have printed very attractive invitations announcing about as follows:

You are cordially invited to attend the opening of the new place of business of the Low & Kurtz Auto Co. (street number), Sac City, Iowa. Insert these: Music, Dancing, Refreshments.

Also use good space in the newspapers two or three days before the opening announcing it and inviting all car owners and interested people to attend. Decorate your place of business inside and out, making it attractive. Have plenty of seats and chairs for people to sit on.

Delegate people to greet visitors at the door. Have several boys and girls to distribute small sandwiches and coffee or tea.

Clear out part of a large floor if possible and have dancing. Provide a check room without charge where coats and hats can be kept.

Have a register in which guests are invited to write their names, addresses and make of car owned.

We believe that you can readily understand why all these things are done, because the principal object of the opening is to give your place publicity and to put yourself in touch with as many people as possible. The proprietor or proprietress should mingle with the crowd and get acquainted with as many as possible. Be sure that everyone has a good time.

As to making it an exclusive Ford garage we are afraid you will have to determine that yourself. It all depends upon your volume of Ford business and the character of the surrounding country.

If there are a great many Fords there and you can make yourself a highly specialized shop, perhaps this would be a good thing to do, but if there is a lot of other business which you might need you would only be cutting down your volume by restricting yourself to Ford work. Many shops are run either way with success.—Editor.

Direct-to-Owner Campaign

Editor Motor World: Articles that have appeared from time to time in your magazine indicate that you are always interested in any advertising showing real co-operation between the manufacturer and the dealer.

The thought occurred to the writer that, in consequence, you may be interested in the direct-to-owner campaign that our company is conducting in co-operation with its dealers.

This direct-to-owner campaign, understand, is not designed to take the place of our general publicity campaign that is to begin shortly in national magazines. It is really a complement for it. It is the part of the advertising that will bring our dealers' personality in the limelight and show to them that we are taking to heart their success not only in the department that deals with our goods but in their shops and stores in general.

For this purpose we are sending out

to a list of customers furnished by the garagemen a series of three folders as per specimen enclosed herewith. These folders, imprinted with the name of the garage at a prominent place, carry the dealer's message as well as our message to the car owner. It advertises BURD HIGH COMPRESSION PISTON RINGS, of course, but it also advertises the dealer, his shop, his service.

The imprinting, folding, addressing and mailing of all the three circulars is made at the offices of the BURD HIGH COMPRESSION PISTON RINGS COMPANY. We know that the majority of dealers have no facilities for such work and that very often advertising matter gets dusty on the shelves, not because the dealer is not interested, but because being generally a combination of general manager, bookkeeper, stenographer, collector and all around mechanic, he has not the patience, nor the time, to attend to the mailing of advertising matter without neglecting some other work.—Burd High Compression Ring Co., P. E. Dumas, Asst. Advertising Mgr.

Using Car Motor for Farm Machinery

Editor Motor World: One of my customers has just purchased a Model 34 Oakland touring car, and as he is a farmer he needs power to operate chopping mill, ensilage cutter, threshing machine, etc., and wants to know if he could satisfactorily use his car.

I have suggested to him that he could connect up by using a shaft with two pulleys spaced the same distance apart as the car wheels; jack up the rear of his car, and, removing the tires, use a belt from each wheel to the pulley on shaft and then a belt from a third pulley on this shaft to the machine to be operated. Would this arrangement work out satisfactorily?

Could he get sufficient power to operate a chop mill that requires an 8 hp. steam engine?—W. F. Sherwood, Irvona Garage, Irvona, Pa.

Answer—Your idea of jacking up the car and taking the tires off the wheels is all right, but it is not necessary to go to all this trouble. In other words, it is not necessary to remove the tires.

We suggest that the rear wheels of the car be mounted on two pulleys on the same shaft, the car being anchored by a bar running from some stationary object to the front axle so that the car will be held firmly in position on the pulleys with no danger of its rolling off, backward or forward.

It would be an easy matter to develop 8 hp. with this arrangement. We cannot say positively, however, whether you will have any cooling troubles when developing this horsepower, although we hardly think so. You might have trouble, however, if you tried to develop more horsepower than this.

In arranging your belt pulleys and belt gearing, you must be careful to do it in such a way that the arrangement will be able to develop the power at the desired speed.—Editor.

The RETAIL NEWS

SOUTH

Merrill F. Johnson has opened a supply and accessories store in Wilson, Va.

New Garages

Capital City Garage & Tire Co.,
Columbia, S. C.
Howe Motor Co.....Demopolis, Ala.

MOUNTAIN

The Wilds-Thurston Motor Co., Great Falls, Mont., has moved to new and larger quarters in the Showen Building.

The Swain-Vanderbur Motor Co. has bought the Baker-Rhenhart Garage, Montrose, Col.

Talley & Miller have opened a tire repairshop in Grand Junction, Col.

The White Co. has bought the garage and repairshop of the Penney-Lyle Co., Grand Junction, Col.

The Lincoln Garage, Malad, Idaho, has been sold to the Evans Co-operative Co.

The Sharman Auto Co., Salt Lake City, has moved into its new three-story building, which is equipped with clubrooms for employees, showers, etc.

The Salt Lake Auto Accessories Co., Salt Lake City, has discontinued its retail business and is moving to new quarters in the Dooley Building, where it will do a wholesale business only.

The Taylor Motor Co., Salt Lake City, has moved to new quarters at 127 South State Street.

The Wilson Auto Repair Co. has moved to a new building at 134 West Broadway, Salt Lake City.

The Pioneer Motor Co., J. D. Sheppard, manager, has moved to a new building on State Street, Murray, Utah.

The Nash Auto Repair Co., Murray, Utah, has taken over the repair department of the Roselund Auto & Machine Co.

L. C. Moore Tire & Rubber Co. has moved into larger quarters at 443 South Main Street, Salt Lake City.

New Garages

Draper & Co.....Grand Junction, Col.
N. J. Chapin.....Glenwood Springs, Col.

PACIFIC COAST

The Paige Motor Car Co., Sacramento, has been allotted Sacramento territory as sub-agent for Daniels cars.

A. C. Stevens, Portland, Winton and Haynes distributor, and Lee L. Gilbert, distributor for Elgin and Harroun cars, have leased new quarters at Washington and Burnside Streets, which they will occupy jointly.

Sharp Motor Car Co., Portland, has purchased the Chandler agency in Portland from the Twin States Automobile Co. and has absorbed the latter company.

Bailou & Wright, Portland, have been appointed distributors in Portland for the Gray & Davis starting system for Ford cars.

Roberts Motor Car Co., Portland, handling Republic trucks, recently moved into a new building on Lower Park Street.

Harvey Rothweiler, Ford agent in Seattle, has sold out to Alfred G. Ayerst.

James A. Smith, Seattle, has opened a Gates Half-Sole tire agency and service station.

Charles S. Harper has organized the company of Charles S. Harper, Inc., Seattle, and has opened quarters at 1817 Pike Street as a Willard Storage Battery agency and service station.

The Wire Wheel Service Co., Seattle, has been opened at 309 East Pine Street.

Spokane Auto Co., Spokane, is completing its new home at 816 Second Avenue and will move April 1.

Chevrolet Motor Co., Spokane, recently installed an office display and parts stockroom at 920 Second Avenue for wholesale business.

E. V. Reeves and W. F. Costello, Seattle, have organized the Used Car Emporium and will occupy a building at Twelfth Avenue and East Pine Street.

Spokane Auto Market, 313 Sprague Avenue, Spokane, Wash., is opening its new building with a used car show. It is sending car owners a letter asking that cars be brought in for resale. Owners are asked to state the lowest net price they will accept and the terms of sale. R. L. Bogartus is proprietor.

New Garages

Spokane Automobile Co.....Spokane
W. G. Potts.....Seattle
W. W. Sparks.....Vancouver
The Dalles Garage Co.....The Dalles, Ore.

MIDDLE WEST

The Weir Motor Sales Co., Mt. Clemens, has leased the building on North Walnut Street, formerly occupied by the Cutschow Furniture Store.

Knight & Matzen, Flint, distributors for Studebaker and Maxwell cars, have moved to new quarters at 702 North Saginaw Street.

Chas. Brooks & Son, Ewart, Mich., have purchased the garage of Mooney & Son.

The Henderson & Baldwin Used Car Co., Madison, has leased the main floor of the Union Transfer & Storage Building and will carry a stock of from 60 to 100 used cars.

Priellipp & Welbier, Janesville, Wis., distributors of Nash, Reo, Chalmers and Oakland cars, have moved their salesroom and service station to larger quarters at 11-13 South Bluff Street.

New Garages

Citizens' GarageHamilton, Ohio
Orwell GarageOrwell, Ohio
Guy Ferre.....Decatur, Ill.
Whitaker & Smith.....Knoxville, Ill.
The Service Motor Sales Co.....Decatur, Ill.
The Cadillac Motor Sales Co.....Peoria, Ill.
Irvin BogueBement, Ill.
I. H. Gingrich & Son.....Grand Rapids

NORTHWEST

K. C. Roberts has bought a controlling interest in the Central Garage, Oskaloosa, Iowa.

C. W. Satterlee & Son, Independence, Iowa, have sold their garage to C. S. Davis, Burlington, Col.

D. E. Higgins, Boone, Iowa, formerly manager of the Montgomery Auto Co., has bought the business.

Will Gronou, Beloit, Iowa, has sold his garage.

C. T. Knudtson, Roland, Iowa, has again bought the Hawkeye Auto Co.

E. L. Anderson has withdrawn from the Central Garage & Repair Co., Oskaloosa, Iowa.

R. E. Young, Fernald, Iowa, has sold his garage to Ray City.

Frank Emery, What Cheer, Iowa, has leased the Hemsley Garage.

New Garages

Floyd ThomasIowa City
W. E. Brooks.....Milford, Iowa
Edward Carney.....Storm Lake, Iowa
O'Connell-Cummings Auto Co.....Sioux City
L. F. Kessler.....Iowa City

SOUTHWEST

M. D. Ricketts, Independence, has bought the Central Garage and styled it the Main Street Garage. Many improvements have been made.

A. V. Halda, Herlington, Kan., has bought Carl Lamb's garage and service station.

The George E. Mathews Motor Co., Parsons, Kan., has opened for business.

Earl Hakan and Oliver Clark, Altamont, Kan., have bought the Dennis & Son Garage.

John Goebel and Ed. Vletch, Hardtner, Kan., have bought the garage business of W. P. Ellis.

The Bartz Motor Co., Spearville, Kan., has succeeded the Bartz & Johnson Co.

John Turnbull, Jr., Maple Hill, Kan., has bought the Adolph Haubold Garage.

Finley Thompson, Holton, Kan., has opened a storage battery station.

Baumgarten & Bronischliski, Woodland, Kan., have bought the garage business of Harry Kelly.

Redmond Applebee, Mankato, Kan., has bought the local garage.

The William T. Gilliland Garage, Ottawa, Kan., has moved from 203 North Main Street to 119 East Second Street.

Los Gardner, Concordia, Kan., has bought the interest of Victor Duff in the Motor Inn Garage.

L. C. Hay, Beloit, Kan., has bought the Kent Tire Shop.

Carey & Reed, Belleville, Kan., have bought the Mosher Garage.

L. M. Terry, Elk City, Kan., has bought the repairshop of the Palace Garage.

L. E. Ochampaugh, Stockton, Kan., has leased the White Way Garage.

C. L. Hyatt, Scottsville, Kan., has taken charge of the Shunn Garage.

H. M. Grant and T. R. Walker, Arkansas City, Kan., have bought the Collinson Garage.

Riley & Powers, New Madrid, Mo., have purchased the garage of O. O. Hamilton.

The C. & A. Auto Supply Co., with headquarters at Pittsburg, Kan., has opened a branch at Joplin, Mo.

Moore & Habbits, Desloge, Mo., have sold their service business to Walter H. Bouchard.

Sam Vendig, St. Louis, distributor of the Max-O-Tire, has opened a salesroom at 3217 Locust Street.

The Reconstruction Tire Co., St. Louis, has doubled its capacity by leasing quarters at 3444 Lindell Avenue, which joins its present store.



Buy Liberty Bonds



The Roberts Tire Co., St. Louis, has opened salesrooms at 2827 Locust Street to handle Dayton Airless tires. Joseph Roberts is president of the company.

Shelby Farrell, Shelbina, Mo., has bought the garage business of Bert Wiggins & Son.

The Wegeng Motor Co., Norborne, Mo., has added two display rooms.

The Kentner-Van Hercke Motor Co., St. Joseph, Mo., will open quarters here this month as a sales agency.

Clarence Haines, Waurika, Okla., has bought the vulcanizing plant of Vince Reynolds.

Morgan & Kneff, Driftwood, Okla., garage firm, has succeeded the Kneff & Andrews Co.

The Gessel Motor Sales Co., Tulsa, Okla., has completed new service station and salesrooms at Twelfth and South Main Streets.

Egan & Rhame, managers of the Texas branch of the Jenkins Vulcan Spring Co., have moved from 708 Commerce Street, Fort Worth, to 209 South Houston Street, Dallas.

H. C. Mills, Keerville, Tex., has moved the Guarantee Garage into new quarters.

B. O. Bottorff, El Paso, is building a 2-story structure as an automobile salesroom.

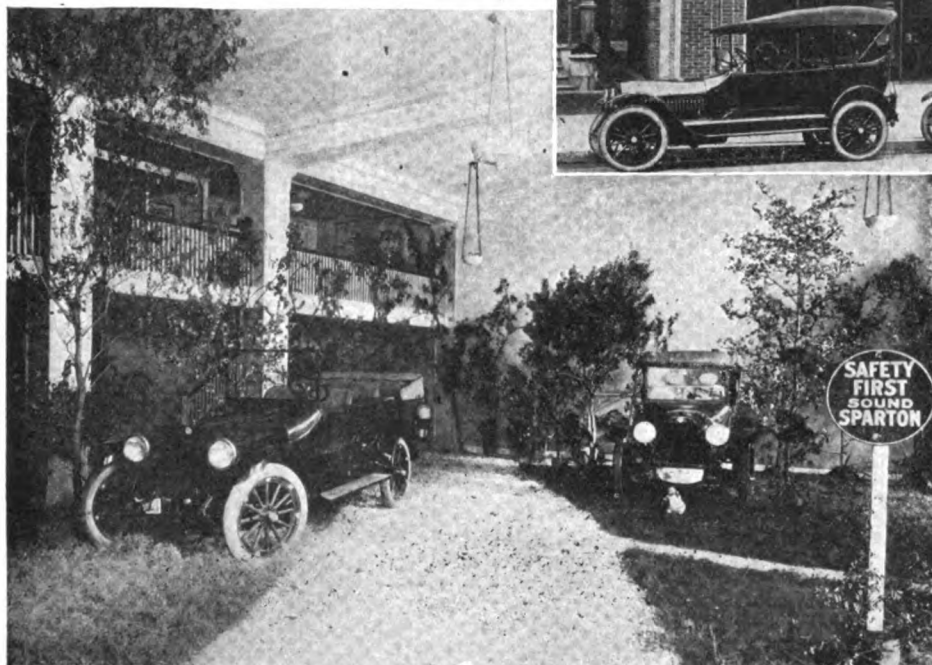
New Garages

Alvey & McBee.....	Joplin, Mo.
Phelps Bros.....	Beaver, Okla.
George Smart.....	Ardmore, Okla.
Geo. L. Walters.....	Oklahoma City
Mentzer Bros.	Pawnee, Okla.
Roy McCormick.....	Bartlesville, Okla.
Gramee & Selkins.....	Perry, Kan.
Peter Machiels.....	Oskaloosa, Kan.
L. C. Walkington.....	Woodlawn, Kan.
The Larzelere Bros.....	Wathena, Kan.
Geo. L. Sullivan.....	San Angelo, Tex.
John Talley.....	Purcell, Okla.
Liberty Garage & Service Co.....	Tulsa

You Can Almost Tour in This Salesroom

WHEN Fred Perkins, presiding genius of the Capital City Auto Company, began selling Studebaker cars in New Orleans, he did so with the firm intention of outselling every other make of car. He immediately adopted as his slogan, "Watch us make New Orleans a Studebaker town," and proceeded to let the good folk of his territory know he was on the job.

Perkins recently moved his Capital City Auto Company into its new home on Charles Street. The accompanying photographs convince one that Fred is addicted to the habit of having things "just right." This beautiful new building follows closely real old Southern architecture. It is handsome both outside and in—good to look at from every angle. This new home was built exclusively for the sale of Studebaker cars and cost nearly \$50,000.



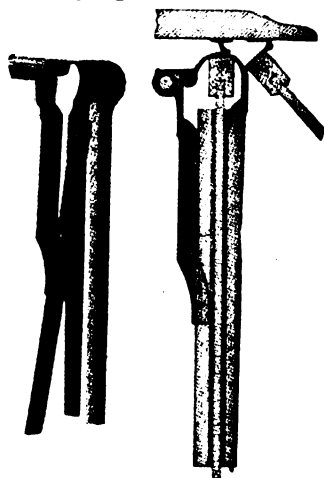
Trees, grass, gravel walk and road, and even the warning sign of "Safety First Sound Sparton"—it is real. A touring car and a roadster—why more? Perkins doesn't believe in putting his stockroom in the front of his store. He took his tip from the big department stores. He found that the stores with the windows that attracted the greatest attention were those that displayed but a few things at a time—but displayed them artistically.

The ceiling of this salesroom is 19 ft. high and there are but two columns in the entire room. All offices are on the mezzanine floor. The showroom itself is 50 ft. 6 in. wide by 49 ft. 6 in. in depth; the entire building is 50 ft. 6 in. by 160 ft. and is two stories in height. It is without doubt the handsomest establishment in New Orleans.

Accessories

AUTO-SCOPE WINDSHIELD WIPER

A windshield wiper that wipes both sides of the glass at one stroke. It is adapted to any type of shield and requires but 1/16 in. clearance at the top. The frame is of steel, oxidized or nickel plated. There are two outside wiping members fitted with squeegee rubber. The in-



side member carries a felt insert wiper. The triple bearing surface assures an easy movement and prevents sticking. It can be inverted and used through the opening between the upper and lower halves of the windshield. Price, \$1.50, oxidized; \$2, nickel.—White Lock Co., Chicago.

COPEMAN LUBRI-CAP AND LUBRI-CUP

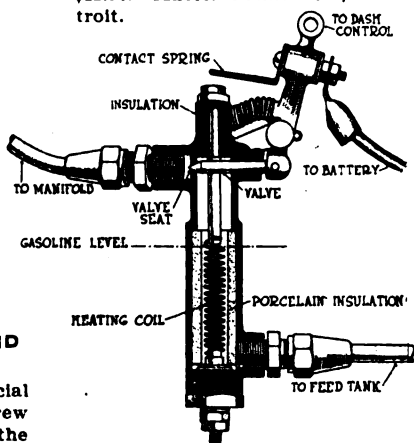
The Lubri-Cup is a special form of grease cup with screw top and plunger, into which the grease is introduced in the form of the Lubri-Cap, a paper covered capsule, fitting the cup. The caps are sold in boxes and are easily placed in the cup without waste or loss of time. The capsule protects the hands and



clothing from the grease, and protects the grease from dirt and grit. Price, cups, 50c each; caps, 25c per box.—Copeman Laboratories, Flint, Mich.

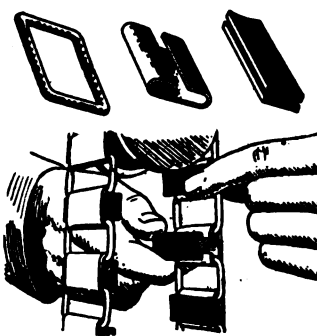
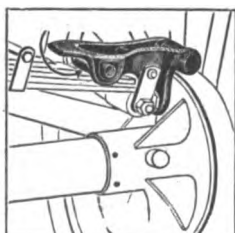
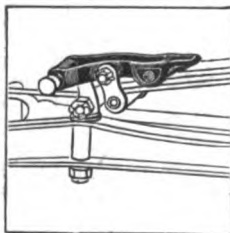
MASTER PRIMER

An electrically heated vaporizer taking gasoline direct from the carburetor by means of a feed line to a point in the carburetor where the level is controlled by the float. This maintains the level in the primer. Electrical connection is made through a contact spring operated from the dash. The contact brings the heating coil to incandescence and the same action withdraws the needle valve from its seat and admits the vaporized mixture to the manifold. The heating coil is surrounded by porcelain insulation. All other electrical parts are insulated by bakelite tubing and washers. The coil operates on 20 amperes. Made for all cars using storage batteries. Price \$12.50.—Master Primer Co., Detroit.



S & S SHOCK ABSORBER

A shock absorber without springs, consisting of a roller bearing attached to the end of the car spring as shown. It exerts pressure upon the spring itself, flexing the end after compression and preventing a sudden rebound. Designed for Fords only at present, but will shortly be made for cars of all types. Price \$12 for set of four.—Starkweather - Smook Corp., Fort Madison, Iowa.



CROWE FAN BELT

The belt is composed of alternate links of wire and sheet steel, the latter open on the inner side. A leather section is fitted in each opening, which closes the link and forms the bearing surface of the belt. The leather sections are removable, and any number of links can be added or removed at will. The surface of each block is concave to conform to the face of the pulley. Made to fit any flat pulley from 1 to 1 1/2 in. wide. Price for Fords, \$1.25 each; special lengths, 60c per foot.—Mechanical Belt Co., St. Joseph, Mo.

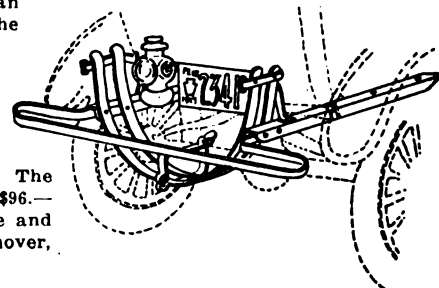
MANLEY OIL SERVICE

The service is designed to provide a satisfactory method of supplying lubricating oils to cars, both in the garage and at the curb with speed, cleanliness and convenience.

Each unit consists of a 12 gal. tank provided with a self-measuring cast iron pump. The pump piston, also of cast iron, has a semi-steel snap ring accurately ground. The valves are bronze checks. The piston goes to the extreme bottom on the down stroke and its upward movement is regulated by an adjusting screw which is set to pump exactly one pint of oil. The whole is mounted on a base with roller bearing wheels, and is furnished in one, two and three tank units.

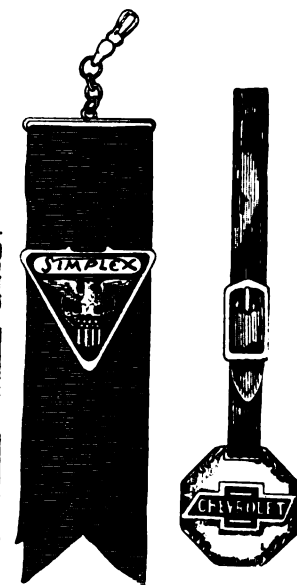
The tanks are of heavy steel, 12 in. in diameter by 24 in. high and are provided with an 8 ft. oil-proof hose. The

two unit service is 36 in. long, 19 in. wide and 56 in. high over all, and weighs 190 lb. The list price is \$96.—United Engine and Mfg. Co., Hanover, Pa.



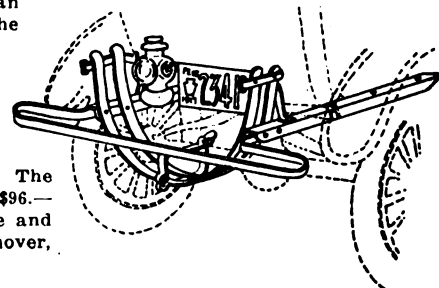
MOTOR CAR WATCH FOBBS

A very attractive selection of fobs, each bearing the name and distinctive device of a standard make of car, is now available for the use of dealers and owners. The designs are exact reproductions of the trade-marks of the various types. They are made of a hard metal and finished in triple gold plate or polished nickel filled in with glass enamel in the correct colors and mounted on black silk ribbon or leather straps. Price, 60 cents with ribbon, 50 cents with strap.—L. F. Grammes & Sons, Allentown, Pa.



LIBERTY TIRE RACK

A carrier for Ford cars accommodating one or two tires or wire wheels locked in place, together with license tag and lamp bracket. It is made wholly of wrought iron and will support 300 lb. To attach, the rear body bolts are loosened and the side angles of the carrier are slid over the ends of the rear member of the frame, where they are held by lag screws and the body bolts tightened. A locking bar and lock and a bumper are features of the device.—Horrocks Iron Works, Philadelphia.



THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Pennsylvania Laws Affecting Car Dealers

Editor Motor World: At a recent meeting of the Harrisburg Motor Dealers' Association the question arose as to what Pennsylvania State laws have recently been passed which might be beneficial or detrimental to motor dealers. The secretary of this association was instructed to write to Motor World asking if they have on file any such laws, and if we might be permitted to have copies of the same?—Harrisburg Motor Dealers' Association, Harrisburg, Pa.

The following laws of 1917 passed by the Pennsylvania Legislature will no doubt be of interest to you. You can procure full copies of each of these laws by writing to your Secretary of State and asking him to send them to you.

Act No. 227: Provides that persons doing business under an assumed name must file a certificate under oath setting forth their real name, etc. Violation is a misdemeanor.

Act No. 228: Provides that it is unlawful to drive a power vehicle over a bridge faster than six miles per hour if it weighs over four tons. Violation is a misdemeanor.

Act No. 167: Provides that motorists must stop after an accident, return and give aid and assistance. Violation is a misdemeanor.

Act No. 327: Authorizes corporations of other states which manufacture motor vehicles and accessories to erect and maintain buildings and hold real estate.

Act No. 158: Provides that it is a misdemeanor to handle or drive teams or vehicles while intoxicated.

Acts No. 37 and No. 38: Refer to limited partnerships.

Washington Lien Law

I am glad to see that the readers of this page go over it carefully. The following correspondence shows that they do. It also states correctly the present lien rights of Washington garagemen.

In the latter part of July I wrote to the Department of State of the State of Washington asking if there had been any change in the lien laws as regards the rights of garagemen. The following letter shows that sometimes even a Department of State can make mistakes. This letter will show the subscribers who took the time and trouble to write in that I

used all due care in getting up the Lien Law Compilation:

The Secretary Said

George F. Kaiser:

In reply to your communication of the 24th inst., re liens on automobiles.

You are advised in the last session, which closed on March 8, there was no legislation enacted along this line.

I. M. HOWELL,
Secretary of the State
of Washington.

Olympia, July 30, 1917.

Eastman Said

Editor Motor World: On page 17 of the Feb. 13 issue of Motor World you give information regarding the lien law of the State of Washington which, according to our information, is not correct, and we are writing to suggest that you refer to an act which was passed by the last legislature and approved by the governor on March 10, 1917.

It provides that persons expending labor or material in the construction and repair of any chattel at the request of the owner shall have a lien upon such chattel for such labor performed or material furnished, notwithstanding the fact that such chattel be surrendered to the owner thereof, provided that within sixty days from date of delivery of such chattel he files in the office of the auditor of the county in which such chattel is kept a lien notice.

A lien may be foreclosed within nine months from date of filing. A dealer who has sold a chattel on a conditional sale contract and filed the contract as provided by law always takes preference over lien for repairs done at the instance of the vendee.

Chattel loans or other encumbrances filed prior to the beginning of the work for which the lien is claimed take preference over the lien.—Eastman Motor Car Co., Spokane, Wash.

Still Another

Editor Motor World: In perusing your articles in Motor World for the issue of Feb. 13, entitled, "Lien Laws of All States," I find that as regards the exposition of our Washington State laws this conflicts very radically with a letter I have on file from my attorneys on the subject. Herewith you will find a copy of the letter referred to, and any further information that you can give me will be

appreciated.—Robert Taylor, 405 East Pine St., Seattle, Wash.

From Taylor's Attorney

Mr. Robert S. Taylor,
405 East Pine St., Seattle, Wash.
DEAR SIR:

For your information, and in order that you may not be misled by adhering to the old rules permit me to call your attention to the following changes which were made by the laws enacted at the last session of the legislature:

1—A chattel lien, in order to be effectual, must be filed in the office of the county auditor within sixty days after the chattel has been delivered to the owner.

2—The right to a chattel lien is initiated as soon as the performance of labor or the furnishing of materials has been commenced, and the lien is superior to any mortgage lien or both encumbrances which may attach, or which may be filed subsequent to the commencement of the furnishing of the labor or material.

In other words, if you have a chattel mortgage on an automobile, your mortgage must be filed immediately upon its execution, as the ten-day period will not be allowed in order to give precedence to chattel liens subsequently accrued.

3—In order to enforce a lien foreclosure must be begun within nine months after the lien is filed.

4—Liens for labor take precedence over liens for material.

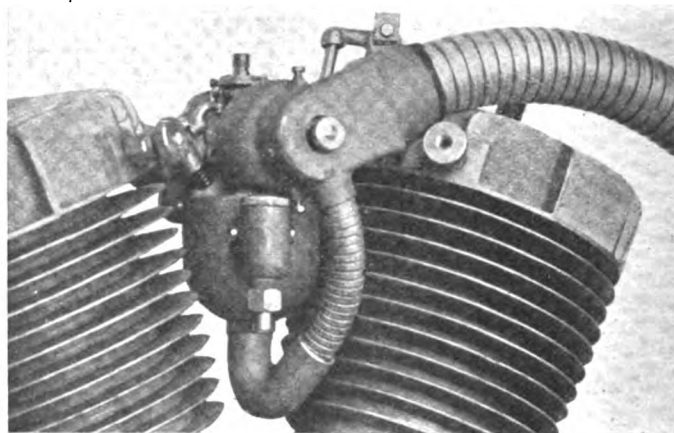
Some impression has been gained by many of the automobile dealers that under the new code a priority is gained by having a conditional sale contract to take care of deferred payments on automobile purchases rather than a chattel mortgage. On examining the session law I find that these two classes of instruments are put in substantially the same class in so far as chattel liens are concerned. Under the old law the chattel mortgage took precedence over a chattel lien, subsequently attaching, while a conditional sale contract did not, but under the new law both the conditional sale contract and the chattel mortgage take precedence over any chattel lien attaching after the filing of the conditional sale contract on the chattel mortgage.

I call your attention to these changes in order that you may have them in mind in the handling of your business, as they are quite important and quite radical in a way. Very truly yours,

SPENCE & DENHAM,
Seattle, Wash. Attorneys.

Liberty Motorcycle Whipped Into Shape

*Design Not Radical in
Two-Wheeler That Is
to Bear U. S. A. Name*



New carburetor developed for the U. S. A. motorcycle

WORK has about been completed on the new engine with which are to be fitted all motorcycles to be purchased by the Quartermaster General's Department from a certain date in the not distant future.

Like the three special truck models designed for the department, the motorcycle will bear the name of the U. S. A. and will be used for a wide range of duties at and behind the front. Probably 90 per cent of all the machines required will be fitted with side cars, and in view of this and the heaviness of the roads to be traveled, the engines will be built with slightly lower compression than present-day standard motorcycle engines. This will somewhat depress the power curve at the upper end, but will enable the engine to run on full throttle at a lower speed; in other words, it will cause the machine to "hand on" with great tenacity in pulling through sand and mud or under other difficult conditions.

Nothing Radical

There is nothing radically new in the design of the engine, which may be said to embody the best modern practice in motorcycle engines. Where deviations from stock practice have been made the reason has been either that the special purpose for which the machine is designed could be better met by a different design, or since no commercial questions need be considered and the best is just good enough for Uncle Sam's boys at the front, materials are used which would not be considered in stock practice because the average purchaser would not appreciate their value.

The U. S. A. cycle engine is of the 4-cycle, two cylinder, Vee type, air cooled. It has a bore of $3 \frac{5}{16}$ in. and a stroke of $3 \frac{1}{2}$ in., giving a piston displacement of 60.34 cu. in. The compression space is such as to hold 6% ounces of water, and as one ounce of water is equal to 1.728 cu. in., this figures out to 11 cu. in. As the piston displacement of each cylinder is 30.17 cu. in. this gives a compression ratio of

$$\frac{30.17 - 11}{11} = 3.74.$$

11

The cooling flanges on the cylinders run circumferentially, while those on the head run fore and aft. As the heads are

cast integral with the cylinders, longitudinal flanges on the heads facilitate the casting of the cylinders, as compared with a construction in which the cylinder head flanges are arranged radially. The ribs on the sides of the intake valve pocket also run horizontally.

Between the axes of the two cylinders there is an angle of 45 deg., a feature of design that is largely determined by the space available in the conventional motorcycle frame. The two cylinders are secured by four studs each to the aluminum crankcase, which is made in halves, with the division in a plane at right angles to the crank axis.

On the crankcase castings are formed a bracket for the ignition magneto and a saddle for the lighting generator, the two being located on opposite sides. The magneto is clamped down to a planed surface in accordance with standard practice, and the generator is clamped to a cylindrical seat or saddle.

This saddle is bored out and at the middle portion of its length it is relieved to receive a piece of strip steel which is secured in place by means of machine screws and has its end formed into hooks. These hooks engage slots in the clamping strips which are drawn together by a machine screw and nut at the top and thus securely hold the generator in place.

Keystone Frame

A so-called keystone type of frame is to be used in the U. S. A. motorcycle. Instead of the frame tubing looping around the crankcase at the bottom and carrying brackets to which the engine is secured, the engine crankcase forms the keystone of the frame structure. This places considerable strains on the crankcase in going over rough roads, and to allow for these some rather heavy lugs are cast on the lower part of the crankcase, and the crankcase wall between these lugs is thickened.

All bearings on the crankshaft, with the exception of that at the cam gear end, are roller bearings. One of the connecting rods has its head made in the form of a yoke, and the other is of the ordinary type. Both have solid heads, which is rendered possible by the fact that the crankshaft is built up and the connecting rod heads can be stripped

over the crank-pin before the latter is assembled with the flywheels.

The joints between the journals and the flywheels are of the taper, key and nut type. The two enclosed flywheels will be made from drop forgings instead of from iron castings. Although the bursting of flywheels is an almost unknown occurrence in the motorcycle industry, it was considered good practice to make this impossible in the army machine. On the crank-pin there are four rows of rollers, two in each connecting rod head, and on the main journal at the power take-off end there are two rows of rollers. The piston pin bushing is bronze.

Cast Iron Pistons

Cast iron pistons are used, with three rings at the upper end and an oil groove at the lower end. There is a wide land between the top and intermediate ring which furnishes most of the bearing surface at the top end. A substantial rib connects the piston bosses to the head and helps in the transfer of heat from the head to the skirt. The wrist pin is secured in one of the piston bosses by a $\frac{3}{16}$ in. solid pin with a cotter end. The connecting rods are drop forgings of I section and are made as light as their work will permit.

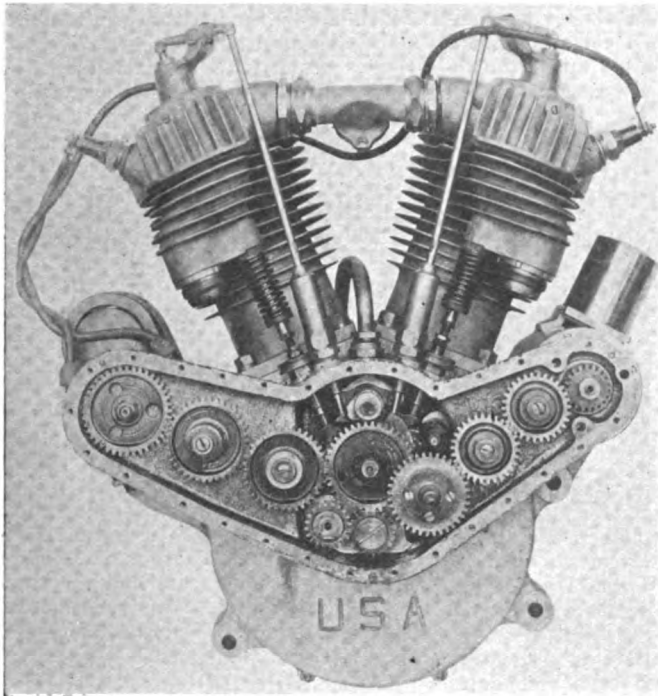
An interesting feature of the engine is the all-spur gear drive for the crankshaft, the magneto and the lighting generator; with it is combined also the worm drive for the oil pump and the drive for the crankcase release valve. There are eleven spur gears in this double train, but each is of liberal dimensions for the amount of power to be transmitted, is carried on a well-supported shaft or a hardened stud supported at both ends, and provision is made for thorough lubrication, so the likelihood of trouble is very slight.

Though the magneto runs only at one-half crankshaft speed, the generator runs at twice crankshaft speed, this speed resulting in a very light and compact machine. As current for lighting is used only at night and the generator serves no other purpose than to furnish this current, provision is made for disconnecting the generator during the day.

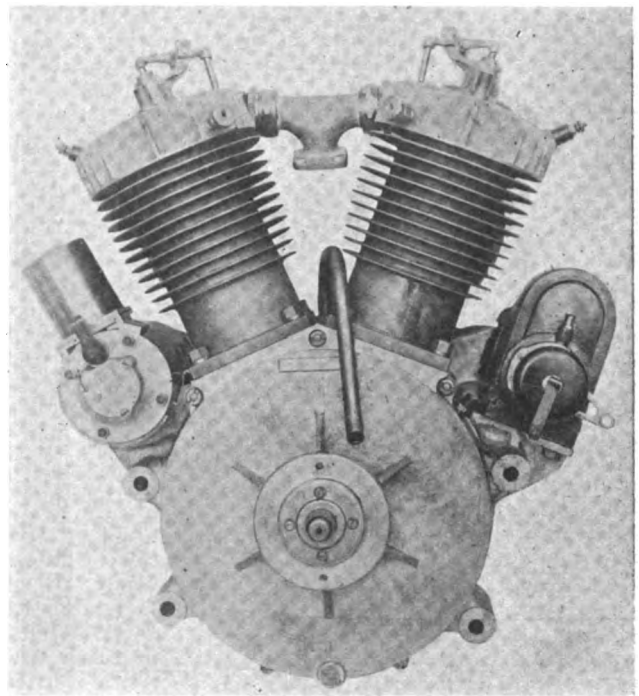
Referring to the photograph of the engine herewith, showing the gear case



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Magneto and generator drive on U. S. A. cycle engine



Driving end of U. S. A. cycle engine, showing method of generator and magneto mounting

cover removed, the crankshaft pinion meshes with the camshaft gear directly above it. This latter meshes with a pinion to the right of it, which is hidden in the illustration by the gear in front of it. This set of gears on the same axis can be coupled together and disengaged from each other by means of a jaw clutch whose members are formed on the gears themselves and which is operated by means of a knobbed rod extending through the cover plate.

Designing the Clutch

In designing the jaw clutch the engaging surfaces were given such a rake as to make it impossible for the driver to engage the clutch while the engine is running, though it can be disengaged without stopping the engine. The reason for this construction is that if the generator armature were connected to the crankshaft by a positive clutch while the engine was turning over at high speed, owing to the very considerable inertia of the armature there would be a tremendous shock and very likely something would have to give way.

From the clutch gear, motion is transmitted through two idler gears to the generator gear and when the clutch is disengaged these four gears remain stationary. To open the clutch, the driver pulls on the knob of the clutch rod or pin. There are two circular grooves on this rod, into which the nose of a spring-pressed locking dog in the cover plate engages, one groove corresponding to the "in" position and the other to the "out"

position of the clutch. All gears are case-hardened and run on hardened studs.

In the photograph showing the gear cover removed from the engine may be seen the method for insuring an accurate mesh of the generator gear with its driving gear. The forward end plate of the generator is turned with a shoulder $1\frac{1}{2}$ in. in diameter and $\frac{5}{16}$ in. long, which enters a bore in the gear housing in which it fits snugly. The generator is then drawn up tight against the housing by three $\frac{1}{4}$ in. 28 screws which extend through both the housing and cover plate, so it is not necessary to take off the gear cover plate in order to remove the generator. Provision has also been made to prevent oil from the gear compartment getting into the generator. To this end a knife edge is turned on the hub of the generator gear, which throws off any oil passing along the gear hub toward the generator.

As the two pistons connect to the same crankpin and move up and down in their respective cylinders with little phase difference, as it were, there is considerable pumping action in the crankcase, and to prevent oil being forced out through the vent the latter is opened and closed by a rotary valve at the proper periods in the revolution of the crankshaft. The timing of the valve is such that it is closed whenever the crankcase volume decreases. Thus there is at all times a partial vacuum in the crank chamber and there is no tendency for the oil to be forced out through the bearings and joints. The distance from the center

plane of the engine to the front chain center line is $4\frac{5}{16}$ in.

The Inlet Valves

The inlet valves are located in cages over the exhaust valves and are operated by tappet levers and rods from cams on the same camshaft as the exhaust cams. The main springs of the inlet valves are inside the cages, but there are supplementary springs on the tappet rods which cause these rods to maintain contact with the rock levers and the latter with the cams.

All of the valve springs are enclosed, and, in addition, a pressed steel housing in two parts has been worked out for the inlet valve cages and tappet levers. These housings are held in place by the bolts on which the tappet levers are mounted. The housing fits snugly around the bell-shaped inlet valve cage and is clamped under the head and nut of the tappet lever bolt. The bolt is drilled out for wick oiling and has a reservoir with clip cover in its head which comes outside the housing, so the latter does not interfere with lubrication. In fact, the whole inlet valve assembly can be removed without first taking off the cover.

Making the Manifolds

Instead of the flanged joints for inlet and exhaust manifolds which are universal in automobile and truck practice, flared tube and gland type joints are used for the exhaust and inlet pipes. The exhaust outlet on both cylinders extends downward, as this is the direction the



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exhaust pipes must take and hence the number of right-angle turns in the exhaust passage is kept down to a minimum.

Into this outlet is screwed a steel nipple with a hexagon on its outside which serves also as a flange that bears against the casting. The outer end of the nipple is tapered to receive the flared end of the pipe, and a nut with a female taper screws over the nipple and securely holds the exhaust pipe in place.

The inlet pipe joint is similar, but the nipple, instead of being tapered on the outside, is tapered on the inside, and a gland ring on the smooth-turned end of the pipe is forced into the nipple by the gland nut screwing over the nipple. This form of joint has one great advantage at this point. The inlet pipe connects to both cylinders and the distance between cylinders will vary slightly, which causes no inconvenience with this joint.

Lubrication is effected by a plunger pump which is built into the gear cover plate and driven by a worm and worm wheel from the magneto drive gear. A rotary valve is used for the oil pump, which is in one piece with the worm gear of the drive and it can hardly be doubted that this type of valve is more dependable than the more common ball check valve type.

The oil is taken by the pump from the supply tank combined with the fuel tank and fed into the gear compartment on the engine and into the crankcase. As

the oil is fed to the crankcase continuously there is always a certain amount in the case which is picked up by the revolving flywheels and distributed over all interior parts.

A hand pump is also to be carried on the motorcycle, to permit of delivering additional oil to the crankcase in climbing long grades or when the engine is working under other difficult conditions. In all the illustrations of testing stands herewith may be seen a hand pump mounted on the stand by means of which one of the testers could inject oil occasionally when the supply in the engine seemed to be running low. At the bottom of the crankcase is a shallow oil well into which a drain plug screws from the side of the case.

At the present time practically all motorcycles are fitted with a certain make of carbureter which seems to fit the conditions of motorcycle work particularly well, and the probability is that this carbureter will also be used on the U. S. A. motorcycle. It is of the type in which the needle valve in the spray nozzle is lifted by a cam mechanism actuated by the throttle valve.

It is now planned to use an air cleaner or strainer on the carbureter air inlet so as to keep dust and gritty matter out of the cylinders. This is particularly desirable on a motorcycle because it may happen that a rider on striking a sandy stretch of road may fall, the air inlet coming down to the sand and the motor

continuing to run may draw in sand, which will ruin it in short order. Aside from this eventuality, the roads and tracks over which military motorcycles are compelled to travel, often in squadron formation, are apt to be very dusty in summer time and the fitting of an air cleaner would seem to be an excellent idea, if it does not materially reduce the engine power.

The make of carbureter referred to has had two separate air inlets, but in order that all of the air may be strained by a single cleaner the maker has brought out a special model in which the two air inlets are combined into one. From this inlet connection is to be made to the air cleaner by means of a flexible tube.

Several changes have been made in the carbureter to add to its efficiency. Thus a low speed adjustment has been provided by making the cam in the form of a bronze spring with screw adjustment. The throttle valve shaft is made of tobir bronze instead of brass and the throttle shaft bearing surface has been increased. The float valve is 35 per cent nickel steel to obviate rusting.

In one series of tests the engine developed a maximum power of 15.3 hp. at 2900 r.p.m. This corresponds to a piston speed of 1750 ft. per m. and a mean brake effective pressure of 65.6 per sq. in. Whether the equipment used during this test will be the regular equipment is still undecided.

Experiments are being conducted with three different designs of inlet manifold,



Somewhat belated, but here it is—the picture of the opening night of the Second Annual Pacific Automobile Show. San Francisco, Feb. 16-24



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with different carbureters, carbureter air valves and dust separators. It is the intention to use a dust separator if one can be found which does not decrease the power too much. The attachment of an air cleaner to the carbureter alters the suction curve and as the carbureter is of the type in which the gasoline flow is regulated by a needle valve lifted by the throttle through the intermediary of a cam it is likely that the cam outline will have to be changed. In a preliminary test run with one of the air cleaners the setting of the carbureter had to be changed with almost every increase in speed to get the best power results.

The final selection of equipment will be made not entirely on the basis of maximum power developed, but also in accordance with the pulling power and smoothness of operation of the engine at

low speed, easy starting and other characteristics.

The engine design for the U. S. A. military motorcycle is the work of the Motorcycle Division, Engineering Department, Quartermaster Corps, which occupies offices in the Union Station, Washington, D. C. This was formerly the Military Motorcycle Standardization Board, its members being William S. Harley of Milwaukee, Wis., Oscar Hedstrom of Springfield, Mass., and Frank Schwinn of Chicago, with Capt. F. C. Hiscox representing the Army. Since the establishment of offices in Washington, Charles Franklin has been in attendance for Mr. Hedstrom most of the time, as Mr. Hedstrom's business does not admit of continuous absence, and A. W. Herrington has also been taking part in the work, having charge of all tests.

Rapids, and this city feels that it has been again placed on its former solid foundation as the auto show city of the Hawkeye State. It was not the largest show in Iowa—Des Moines carries the palm in that respect—but the show was as large as it could be with the floor space provided in the city auditorium.

In the basement, where the accessories, trucks, etc., were shown, a special effort was made to place it on a par with the main floor. Fourteen booths were provided for the accessory displays, which were in the center of the room. The truck display booths were along the four walls, with fourteen trucks shown. Because of the limited space there were no tractors shown, but two makes—the Titan and Allis-Chalmers—were demonstrated in the street outside.

By far the best entertainment program ever given at a local show proved one of the reasons for a record breaking attendance. The program included numbers each afternoon by the Camp Dodge Quartet—four soldiers from the camp of that name; Maybelle Arzella, a soprano vocalist; the Des Moines Ladies' Quartet; Arlene Sigmundi, a child singer, and two orchestras, one being stationed in a balcony on the main floor and the other in the basement.

Because of the difficulty in obtaining freight cars for shipments west of the Mississippi River, several dealers had difficulty in getting cars for the shows. This was particularly true in the case of the Studebaker. Most show visitors knew that radical changes had been made in this car, and came expecting to see the new models. The Campbell Motor Car Co., Studebaker dealer here, used every known type of argument to get cars here, but was unsuccessful until Friday evening, when a new model light six was placed on exhibition.

Delayed Arrivals

This car was one of a carload shipped to Des Moines, and was driven from that city to Cedar Rapids Thursday night over roads that were well nigh impassable. The Hudson phaeton, in which there was also considerable local interest, did not arrive until Friday.

The members of the show committee of the Cedar Rapids Automobile Trades Association are: Decorations, J. W. Smith, of the Smith Motor Car Co.; space, I. A. Murphy, of the Murphy-Cadillac Co.; entertainment, L. M. Millsap, of the Millsap Motor Car Co.; finance, E. L. Makibben, manager D. & S. Motor Car Co.; advertising, D. R. Whitmore, of the Courtney Motor Car Co.

These men were assisted in the show management by Paul M. Lattner, president, and H. G. Lyman, secretary of the association.

Did You Ever Have Cold Feet on the Show Question?

Read This Story and Decide Never to Have That Frigid Pedal Feeling Again

CEDAR RAPIDS, IOWA, March 19—E. E. Peake of Kansas City gave the principal address at a banquet given by the Automobile Trades Association in Cedar Rapids one evening this week. His talk dealt with changes in sales methods, but his subject contained, in four words, the history of the Cedar Rapids automobile show. It was "The Old Order Changeth."

There was a time, not many years ago, when Cedar Rapids stood first among Iowa cities in the way of putting on a real motor car show. Then came a show week when the weather was about as bad as could be delivered, even in Iowa. The show lost money, and the nine men who composed the dealers' association contracted an aggravated case of frigid feet.

The following year the show was below the standard set by previous exhibitions. The weather was fine, however, and there was a record breaking crowd—but it was a disappointed crowd in some respects. It was at once concluded that people came to see automobiles only, and did not care whether the decorations were pretty, and were just as well satisfied if there was no entertainment program worthy of mention.

Got Worse

From that time the show deteriorated a little more noticeably each year until it reached a point where blue bunting constituted the principal decorative effect and a four-piece orchestra was considered an excellent entertainment program.

Des Moines, Fort Dodge and Davenport soon became known as the auto show cities, and Cedar Rapids was relegated to fourth place so far as motor car show reputation was concerned.

Eighteen months ago the younger fellows in the business decided that it was time for the old order to change. At a meeting held in a showroom the Cedar Rapids Automobile Trades Association was formed, with Paul M. Lattner as president and E. L. Makibben secretary. Eventually every car and accessory dealer in the city joined.

When the younger chaps decided on a show they went at it in a manner which was considered nothing short of reckless. When it was voted to spend \$600 in advertising and \$1,200 in decorations for the 1917 show, it was predicted that every member of the association was going to be required to dig up after the show. The show was held, proved by far the most successful and drew the largest crowds in the history of local expositions. When the bills were paid there was a comfortable surplus.

The Show Fine

The show, which closed to-day, is the second held under the new regime. It has been pronounced by men who have followed the automobile shows religiously as by far the most artistically decorated, the best arranged and the best attended—population considered—of any show held in Iowa. It is without question the best show ever held in Cedar



The exhibits were all set up in booths just the same as in the familiar motor shows of the winter season. Salesmen and factory men were there as usual

Department Store Puts on Accessory Show

Rothschild & Co., Chicago, Holds Its Second Annual Show and Finds It Is a Good Trade-Drawing Proposition

CHICAGO, March 16—With a good attendance and a buying crowd, Rothschild & Co., one of Chicago's largest department stores, opened its third annual motor accessory show to-day.

This show combines the exhibition features of the national motor car shows and the merchandising methods of a large department store, which together with an intense advertising campaign, in past years has brought excellent results not only in the accessory department but in the other departments of the store as well.

Other large stores in the city have taken advantage of the opportunity and also advertised that they would conduct special sales in their accessory departments to-day.

As a whole the show is larger than last year, having 192 exhibitors, sixty-seven more than last year. It also covers more space than the previous show. Throughout the day the aisles were comfortably crowded and the various booths reported excellent sales.

One of the features of the show is a miniature reproduction of the refining of oil from the crude stock to the finished



One of the exhibits showed an oil field in operation and was surrounded at all times by a curious throng

product, all of the apparatus being constructed in the Rothschild shops. Another interesting exhibit is the manufacture of cord tires, showing all of the various processes. Other booths contained many interesting devices. Naturally the crowd manifested the most interest in the exhibits where things were being sold at a very low price. Some of these were lubricating oil, tires, spotlights, storage batteries, parts for Fords, etc.

The plan of the sale is that Rothschild & Co. own every item exhibited. These are sold by Rothschild salesmen, assisted by the factory's representatives, who demonstrate the goods. A bonus offered by the house stimulates the salesman's interest, thus resulting in heavy sales.

Executives in charge of the department stated that this afternoon's crowd was one of the largest in the history of the store. This also applied to sales, both in the accessory department and in the other departments, where the crowds and sales were much larger than is customary on Saturday.

*Buy
Liberty
Bonds*



And here is a typical corner exhibit with thermos bottles and all sorts of things that the garageman can sell as well as the department store



There is hardly an accessory that didn't find a place in the Rothschild show. Here are batteries in the foreground, and every little way along the aisle is one of the many makes of ever-present tire



Buy Liberty Bonds



Tri-City Dealers Plan Joint Salesroom Display

**Follow Idea Adopted by Bloomington—No Exhibition Building
Large Enough for a Show**

ROCK ISLAND, ILL., March 16—The Tri-City Automobile Trade Association voted this week to adopt the Bloomington, Ill., idea of a joint show of cars, displayed at the same time, in each salesroom, for one week, starting Monday, March 25, and concluding Saturday, March 30.

There is no building in Davenport, Rock Island or Moline large enough to admit exhibits from all of the dealers holding membership in the new association, and it was decided to abandon the annual show. When it became known that Bloomington had successfully pulled off a show simultaneously at each garage, it was decided to test out the plan here.

An intensive advertising campaign has been under way and each salesroom will be artistically decorated with flowers, palms and patriotic displays of various kinds. The new models will be shown and every effort made to attract prospects.

The advertising campaign referred to the show in general and there was no individual mention. It was also voted that if any dealer was called upon by a patron and he failed to have the kind of car that the customer desired, that he would drive the patron to the place of business of his competitor who might have the type of car sought. This fraternal spirit is one of the interesting and praiseworthy developments of the recently organized association.

Not only the motor car dealers, but all those handling tires and accessories, will have an "at home" week at the same time. It was also voted to ascertain a new price to cover the expense of moving a car from the factory to the salesroom. As the railroads have been unable to move any cars, it became necessary to handle them overland. It was carefully computed that the cost of such a movement is \$60 and this sum will be added to the price of all cars and, in the future, cars will be sold f.o.b. Tri-Cities, instead of f.o.b. factory. The advertised price will cover freight charges, war tax, oil and polishing, and will cover the cost of cars as they stand in the salesroom.

At this week's meeting, Secretary V. G. Kropf gave an address upon the subject, "The Necessity of Confidence and Courage in the Automobile Business." He compared the dealers in motor cars to the soldiers in the training camps and at the front, stating that it was just as necessary for the dealers to protect their

morale as it is to have the Red Cross, Y. M. C. A., Knights of Columbus, and other organizations provide means for keeping the minds of the soldiers occupied. He urged the dealers to keep up optimism during the present crisis, and not to become discouraged over the war, as the great conflict had demonstrated that the motor car and vehicle were more necessary than ever before. Kropf also pointed out the evils of price cutting.

Why Studebaker Raised Prices

DETROIT, March 18—Prices on Studebaker commercial cars have been increased \$100 right through the list. Some of the detailed cost increases given by R. T. Hodgkins, general sales manager, are: frame steel formerly \$1.25 per cwt. in 1916, now \$4, an advance of 220 per cent. Sheet steel, which cost \$2.75 per cwt. now sells for \$7, an advance 155 per cent. Aluminum castings, which cost 28 cents a lb. now are 50 cents a lb. an advance of 70 per cent. Cast iron for cylinders and other engine parts formerly \$13.25 a ton, now \$43 a ton. In addition to these it is stated that leather has gone up 40 per cent, cotton fabric for tires 150 per cent, rubber 75 per cent, wheels 80 per cent, and copper 100 per cent.

New prices of the Studebaker commercial cars are as follows: Half-ton models, panel delivery, \$1,085; express, \$1,060; station wagon, \$1,085; chassis, \$1,045; one-ton models, stake body, \$1,550; express, \$1,500; 16-passenger bus, \$1,700; hearse chassis, \$1,600; chassis, \$1,400. All prices are f.o.b. Detroit.

Mix-up in Coast Race

LOS ANGELES, March 18—Barney Oldfield, Eddie Hearne and Tom Milton established new records for the Ascot Speedway in the Blinkey Ben and George Washington sweepstakes here yesterday. Both were won by Milton. The cars driven by Fred Horey and Louis Lecocq turned over, in each instance throwing the driver clear and subsequently being driven to the starting line under their own power only slightly damaged and the drivers unharmed.

The races were conducted by W. H. Pickens and if they indicate what may be expected during the coming season from events that are without A. A. A. or other jurisdiction the public will have to take its chances. Pullen and Harding who were advertised as starters did not appear. Horey, who had been proclaimed the world's champion dirt track driver, was on hand, but when starting time arrived he was said to be without a car. Oldfield loaned him the golden submarine, and it was at the wheel of this car that he came to grief. The fast driving and sensational spills alone saved the management from criticism. As it was, everybody seemed satisfied.

Had Creeper Tractor as Far Back as 1859

**Idea Accredited to Miller—Present
Designs Developed in 1907
by Alvin Lombard**

CLEVELAND, OHIO, March 16—"There will be a demand for 100,000 to 500,000 farm tractors during the next year in America, but the maximum production possible will not exceed 100,000," W. R. Tuwksbury speaking before the Cleveland Section S.A.E. last night placed these estimates on tractor demand and tractor production this year.

In speaking on the subject of "Industrial Track-laying Tractors," Mr. Tuwksbury gave credit for the inception of the track-laying design to an inventor named Miller, who in 1859 developed a rigid-frame of steam-driven device with flexible side members. This seems to have been the origin of the track-laying device. The first man to use the pivoted side frames giving vertical and lateral movements to the flexible members of the tractors was Hanscomb, in 1883. Hanscomb's work formed the basis of the present type.

Credit for being the father of the track-laying thought in this country was given to Alvin Lombard, who in 1907 developed the design driven by a steam engine, having a sled in front, and rear wheels with a drive similar to the present day crawler or track-laying design.

Mr. Tuwksbury, who is with the Cleveland Tractor Co., says that the pressure of the Cleveland creeper belt on the ground is 5 lb. per sq. in., which is somewhat less than that of the human foot. This was advanced as one of the reasons for the adaptability of the crawler type on marshy ground.

A series of motion pictures of Cleveland tractors and French tanks in action were shown.

Grant Increases Price

CLEVELAND, March 18—The Grant Motor Car Co. has advanced the price of its six-passenger models from \$1,055 to \$1,095, an increase of \$40.

Zanesville Dealers Organize

ZANESVILLE, OHIO, March 17—A meeting of approximately 100 garagemen, automobile dealers and accessory dealers was held at this place last week which was addressed by A. E. Mitzler, president of the Ohio Automobile Trade Assn., and Arthur M. Crumrine, the organization expert. After showing the automobile men present the value of the state organization it was voted to affiliate with the state association.

4,941,276 Cars and Trucks in the United States

THE total registration of automobiles and trucks during the calendar year of 1917, the first year of the war, shows an increase over the 1916 registrations, and sets a new record. During 1917 there was a total gain in registration of 1,396,324 automobiles and trucks over 1916. This is greater than the gain of 1916 over 1915, when the increase was over a million. The nine months of war failed to stem the increase in registration, and this stands as an indication of how necessary the automobile is considered even in war days.

The total automobile and truck registration in the country as of Jan. 1, 1918, according to official figures furnished from all of the forty-eight states, is 4,941,276. This figure does not include duplicate registrations, and, of course, does not include hundreds and perhaps some thousands of cars in remote districts, all of which are not registered. In round figures there must have been very close to 5,000,000 automobiles and trucks in the country on the first day of January this year.

Taking the figures compiled from the registration departments of the states, and placing the population at 103,000,000, there is now one motor vehicle for every

twenty persons in the land. A year ago there was one vehicle for every twenty-nine persons. Two years ago there was one vehicle for every forty-two persons.

The gains in registrations during the past three calendar years are:

1915 registration gains..... 686,998
1916 registration gains..... 1,070,143
1917 registration gains..... 1,396,324

The record of holding the greatest number of automobile and truck registrations in relation to population is enjoyed by the agricultural states, with Iowa in the position of leadership with a ratio of one car for every eight persons in the state. Iowa has occupied this position of leadership for several years. In the calendar year of 1915 it had one automobile for every sixteen persons. In 1916 this ratio of cars was increased to one car for every thirteen. In the 1917 year a new record was placed at one for every eight.

Iowa, and Nebraska, which has one car for every nine of population, have a good lead on the other states, and following them are other agricultural states. South Dakota has one machine for every eleven, which figure is shared with Montana. Then comes Kansas, North Dakota, Minnesota and California,

all on even terms, with a car for every twelve of population.

Indiana, Ohio, Wisconsin and Oregon, all grain states, have a ratio of one automobile to every sixteen persons. In the western mining states, where population is sparse and distances great, there is a high ratio of cars to population. Nevada has a one-to-sixteen ratio. Wyoming has one to fifteen. Montana has one to eleven. Idaho has one to eighteen. Arizona has one to thirteen, and Colorado has one to fifteen.

The ratio of automobiles to population in the South is relatively high, notwithstanding the big percentage increases made in all of the Southern States in 1917, as compared with 1916. Florida, although showing a percentage increase of 174, has a ratio of one to twenty-three. North Carolina has sixty-four to one. Georgia has one to forty-one. It will be some time before the ratio in the South approaches the figures of the agricultural states in the Mississippi Valley.

The car population ratio in New England generally ranges at one to twenty-four, with the single exception of Connecticut, which has the record for the group, with a ratio of one car for every seven-teen population.

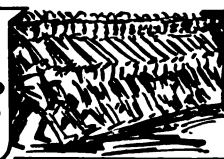
Automobile and Truck Registrations in United States to January 1, 1918

State or Territory	Total Registration	New Registration	Registration Up to Jan. 1, 1917	Gasoline Passenger Cars in Use	Electric Passenger Cars in Use	Gasoline Commercial Cars in Use	Electric Commercial Cars in Use	Motorcycles in Use	Non-Resident Registration*	Re-Registered**	Chauffeurs Registered	Total Fees	Remarks
Alabama.....	32,873	10,519	22,354					1,240			1,631	\$187,696	
Arizona.....	19,890	7,768	12,122			1,439		868			3,453	117,643	
Arkansas.....	28,862	14,158	14,704								485		
California.....	245,866	32,948	212,918	245,866		10,765		32,489	2,750	None	14,935	2,846,030	
Colorado.....	66,850	22,670	44,180					4,504					
Connecticut.....	74,642	18,594	56,048			9,702		4,905					
Delaware.....	10,700	3,180	7,520					730		1,045		133,883	
Dist. of Col.....	21,198	8,080	13,118	20,939	267			346			59,800	83,110	
Florida.....	39,216	24,996	14,220								6,000		
Georgia.....	72,851	27,076	45,775	168,751	1800	13,000	1100	1,400	355	2,000	1,400	230,862	
Idaho.....	24,716	11,720	12,996					732	None	1400	1,181	413,929	
Illinois.....	340,292	88,992	251,300					13,750			45,000	2,237,545	
Indiana.....	192,192	53,054	139,138					10,315		2,759		1,096,106	
Iowa.....	278,213	105,422	172,791					7,884			None	2,249,655	
Kansas.....	159,342	44,978	114,364					5,599	None	4,900	None	83,258	
Kentucky.....	47,400	15,900	31,500					1,450			None	287,212	
Louisiana.....	31,650	11,636	20,014			3,165		382				170,000	
Maine.....	41,499	12,548	28,951	38,067	150	3,382	None	1,516		3,000		487,873	
Maryland.....	60,943	27,579	33,364	3,051		3,656	1500	5,436	1,500	3,314	15,524	807,395	
Massachusetts.....	174,274	37,484	136,790			26,964		19,230			51,690	1,969,813	
Michigan.....	226,693	67,054	159,639	206,380		20,313		8,727	306	11,386	20,157	2,476,525	
Minnesota.....	192,000	54,500	137,500	170,000	1500	120,000	11,500	15,000	None	500	15,000	334,000	Triennial
Mississippi.....	31,650	11,176	20,474								None		
Missouri.....	151,027	43,162	107,865					4,179		4,885	18,040	617,943	
Montana.....	42,749	18,164	24,585			1600		923		853	3,056	295,207	
Nebraska.....	148,101	46,900	101,201					3,500			None		
Nevada.....	6,885	2,276	4,609	6,882	3	1225		238	None	125		32,320	
New Hampshire.....	22,267	7,929	14,338	22,000	100			2,218		1,721	2,400	8,288	425,305
New Jersey.....	141,918	66,810	75,108			9,622		13,198	28,383	126,114	177,568	1,923,164	
New Mexico.....	14,086	6,058	8,028					345			None	80,343	
New York.....	410,950	131,544	279,406			55,402		28,773	4,257	2,446	132,833	4,251,991	
North Carolina.....	55,950	20,800	35,150					1,253		None	None	321,923	
North Dakota.....	62,993	21,232	41,761					1,834			None	211,536	
Ohio.....	342,630	90,451	252,179					21,925		9,000		1,766,427	
Oklahoma.....	100,199	47,481	52,718					2,368	None		None	836,400	
Oregon.....	48,632	17,715	30,917	44,844	1100	3,648	140	3,400	1500	None	3,476	196,788	
Pennsylvania.....	325,153	94,505	230,648			12,952		24,567				3,268,025	
Rhode Island.....	25,142	3,736	21,406			4,065		1,133				346,117	
South Carolina.....	38,322	19,322	19,000					1,250	500	1,000	None	113,557	
South Dakota.....	67,158	22,887	44,271					1,554	None	None	None		
Tennessee.....	48,500	17,100	31,400		50		10	900	None	None	None	317,000	
Texas.....	1219,721	22,034	197,687					3,468	28	6,359	12,714	858,611	
Utah.....	21,576	8,069	13,507	18,227	100	2,500		1,385	100		1,547	518,566	Perennial
Vermont.....	20,367	6,116	14,251	18,970	7	1,262		758		1,817	3,655	362,541	
Virginia.....	55,661	20,235	35,426					2,135			3,530	518,566	
Washington.....	93,822	31,276	62,546	82,066		11,656		6,320		None	None	519,526	
West Virginia.....	31,306	10,869	20,437					825	None		None		
Wisconsin.....	164,531	46,928	117,603			16,000		8,479	None	None	None	861,283	
Wyoming.....	12,501	5,376	7,125					352	None	500	None	57,400	
Total.....	5,085,959	1,541,007	3,544,952	946,043	1,977	210,318	2,154	254,373	10,400	104,283	590,963	\$34,501,371	

NOTE.—Steam cars and trucks are included with the gasoline vehicle statistics, as segregation is not carried out by registration officials. *Number of cars registered owned by citizens of other states. **Number of vehicles re-registered, owing to transfer of ownership, etc. Statistics not available. †Estimated by Secretary of State.



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Changes on Motor Rows

BOSTON, March 16—There have been some changes in Boston in motor dealers in the past couple of weeks. The Shauk & MacMurray Co. has dropped the Columbia, which has been taken over by the Utterback-Gleason Co., Dort distributor.

The Hawley-Cowan Co. has dissolved partnership, which threw the Saxon on the market. The Republic Truck Co. has taken the salesrooms.

The Hinchcliffe Motor Co., handling the Jordan, has dropped the Kissel, and it has not been placed yet. The Liberty has been taken under the wing of J. H. MacAlman, who has the Stearns, and C. I. Howell, who headed the agency, goes with him.

George Dunham resigned from the Stearns forces to take the management of the Standard eight. The Apperson Motor Co. has been formed to handle that line, Shauk, of Shauk & MacMurray, having entered the army, so the old Apperson firm dissolved partnership. George Leghorn, of the Hupmobile, has taken on the Murray eight formerly handled by the McCarthy-Meyer Co.

Things Move Fast in Los Angeles

LOS ANGELES, March 16—Changes in motor car agencies have come with such regularity here in the past few days that the trade is alive with interest. Two weeks ago the Southwest Motors, a subsidiary of Harold L. Arnold, was appointed Maxwell distributor. This was followed in less than a week by the appointment of Harold L. Arnold as Republic truck distributor, succeeding the D. F. Poyer Motor Truck Co.

The real sensation broke Wednesday, when it was made known Harold L. Arnold had relinquished representation of the Dodge. He had handled the Dodge in Los Angeles, Orange, Santa Ana, Ventura and Santa Barbara counties ever since the car has been on the market, establishing a branch in Santa Barbara. Dealers who rushed to call on Jack French, factory representative for Dodge Bros., seeking the line, were told exclusive representation would be insisted upon hereafter, and intimated the reason a change was being made was due to Arnold's many connections, as he had the Hudson, Dodge, Vim, Republic, Columbia and Maxwell under control, and to-day the report was confirmed that the F. A. Albertson Motor Car Co. has been formed to handle the Dodge in Los Angeles County. Albertson up to yesterday was Arnold's sales manager, and some believe Albertson's financial support will be through Arnold.

Many dealers went to French and laid their cards on the table in trying to get the line, and considerable feeling has been manifest as the result of his selection of Albertson.

French asked a number of them, they say, if they would consider any other part of the territory, but this was scorned as impracticable with Los Angeles County eliminated, owing to decreased volume of business.

On top of this to-day Arnold advertised the Maxwell car over his own name and without reference to the Southwest Motors.

Other changes that have to do with the trade which were scheduled to become effective to-day were the establishment of a factory branch for the Chevrolet, succeeding J. W. Leavitt & Co., and the appointment of S. F. Seager & Co. as International motor truck distributor, succeeding a factory branch. The Leach Motor Car Co. is reported to have been named Mitchell distributor, succeeding J. V. Baldwin, but official announcement has not been made to date.

Packard Truck Trains for Soldiers

DETROIT, March 16—Sixty Packard trucks are being driven from the Detroit factory daily, carrying two companies of soldiers. Six Dodge cars are also assigned to each company. The truck trains go via Toledo to the seaboard. Last week the total drive-aways from the Dodge Brothers' factory alone amounted to more than 2400 cars.

Grand Rapids Dealers Have Dinner

GRAND RAPIDS, March 16—The Grand Rapids Automobile Business Association held a dinner at the Pantlind Hotel Wednesday evening as a rally point for the opening of spring business. An optimistic tone prevailed throughout and the dealers were informed of the necessity of the car and for automobile business in and about Grand Rapids. The speakers were City Manager Cumming, Alvah Brown, chairman of the Kemp Road Commission; E. W. Booth, publisher of the Press; President C. J. Licsther, of the association; former President Ray E. Becker. Annual report of Secretary Ernest T. Conlon showed the treasury to be in good condition and the association voted an increase in his salary.

Airplane Plant for Milwaukee

MILWAUKEE, WIS., March 17—Establishment of a \$500,000 airplane manufacturing plant in Milwaukee is presaged by a conference held in this city on Saturday, March 9, between representatives of banks, the Association of

Commerce, County Council of Defense, the Rotary Club and executive officers of the Lawson Airplane Corporation, Green Bay, Wis. As the result of the conference it practically has been decided to move the Lawson company to Milwaukee and develop it into a producer of aircraft ranking with the largest concerns of this kind now existing in the United States.

Held Up in Pennsylvania

DETROIT, March 16—Sixty Oldsmobiles being driven overland via the Lincoln Highway were held up at York, Pa., for not having license tags. The "Car in Transit" signs the cars bore were not accepted. The New York distributor to whom these cars were consigned met an expense of \$720 for the complete set of license plates, the fines charged for them, the salaries of the men while idle and their expenses.

Truck Line Between Detroit and Pontiac

DETROIT, March 17—Pontiac is connected with this city by a motor truck line operated and owned by the General Storage & Cartage Co., Inc., of Detroit. The present service is intended for bulk tonnage, but package service will be installed soon. Five motor trucks of from 5 to 10-ton capacity have been assigned to the service. The trip between the cities can be made in 2 hours. The charge for the service is as follows, the classification being the standard railroad system: In cents per 100 lbs.—First class, 18.8; second class, 16.7; third class, 12.5; fourth class, 10.4; fifth class, 9.0.

Liberty Seaplanes Accepted

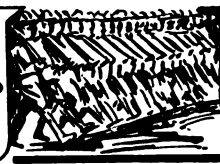
WASHINGTON, March 14—The United States Navy has tried out and accepted the first fighting seaplanes equipped with Liberty engines, and a number of these are now being delivered to the naval air service. The seaplanes are somewhat similar to the British flying boats, and are equipped with two Liberty engines providing 700 hp., which is considerably in excess of the power used in a similar British craft, and their performance is expected to be proportionately better.

LaCrosse After Cash

LACROSSE, WIS., March 17—The LaCrosse Automobile Dealers' Association, LaCrosse, Wis., at its annual meeting adopted rigid rules for the establishment and enforcement of a strictly cash business basis. Henceforth members will be required to make all customers pay cash for repairs, accessories, supplies, gasoline, oil, etc. It was agreed by all that unless a strictly cash basis was adopted,



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it would be necessary to raise all prices. By accepting the alternative, the expense of bookkeeping, collections and other incidental costs arising out of a credit system is eliminated and the association has fallen into line with the progressive dealers' organizations all over the country.

At the business meeting following the annual banquet, the following officers were elected: President, A. M. Tourtelotte; vice-president, J. G. Weihaupt; secretary, Harry Dahl; treasurer, T. T. Bergh; directors, the officers and Frank Dietz.

It developed that every dealer in La-Crosse has on hand from 15 to 20 less cars than at the same time last year. The demand for both new and used cars was reported to be exceptionally keen. Local dealers are advising their patrons that the supply of gasoline is not only larger than normal, but promises to be well maintained, while there is every indication of a serious shortage of cars because of the curtailment of production already agreed upon among manufacturers in order that they may devote part of their facilities to pressing and urgent Governmental needs to win the war.

Driveaways May Be Licenseless

MILWAUKEE, WIS., March 17—To assist motor car manufacturers as much as possible in facilitating driveaways during the freight traffic congestion, the Wisconsin Legislature, in special session at Madison last week, passed a law making it unnecessary for factories to provide license numbers for each car while it is being transported from the place of manufacture to the place of business of the dealer. A large saving to manufacturers and dealers is thus effected.

Delay Airplane Mail Service

WASHINGTON, D. C., March 17—The start of the airplane mail service between Washington, Philadelphia and New York will probably be delayed until May 15, because landing fields have not yet been found at Philadelphia and New York.

Ford Chasers Christened "Eagle"

WASHINGTON, March 14—Secretary Daniels decided to-day to name the submarine fighters being manufactured by Henry Ford the "Eagles." They will constitute the "Eagle class," and will be known as Eagle No. 1, Eagle No. 2, etc.

Open Week in Atlanta

ATLANTA, GA., March 14—This week is open week in Atlanta. The places of the dealers are especially decorated for the occasion, and a great many dealers to whom the Atlanta men distribute cars are in the city arranging to drive new cars overland to their home towns.

Peoria Show Made Sales

PEORIA, ILL., March 16—Because of the limited amount of space available Peoria's thirty automobile dealers were forced to show only passenger cars in the eighth annual show of the Peoria Automobile and Accessories Dealers' Association. Twelve accessory displays added to the exhibition.

Automobile dealers not members of the organization were forced to seek exhibiting space in neighboring buildings and hotels because of the crowded conditions.

The show was the largest and most successful ever held in Peoria. Dealers are optimistic as to the future.

Peoria is fortunately situated as regards freight relations, and the majority of dealers drive the cars cross-country direct from the factories. This method costs a trifle more through the necessary work needed on the cars after a trip of this character, but the dealers are glad to get the machines.

Peoria is located in the heart of the corn belt, and is steadily growing as a tractor center. The Holly Manufacturing Co., maker of the "tank" cars used quite extensively on the European battle fronts; the Avery Co. and several other big factories are located here.

Employees in these plants receive good wages and a large percentage of them are owners of cars.

The attendance at this year's show exceeded all former years. The Peoria dealers attempted a new stunt this year, and held the show in March instead of February, as has been the custom. As a result the attendance marks were shattered and a larger number of prospects were obtained. The ideal weather combined with road conditions brought in large crowds from the surrounding country.

The opening day was designated as "Red Cross Day," and the receipts were donated to the local chapter. A huge crowd was in attendance on that day. Wednesday was dealers' day. All records were broken on that day; 4000 persons attended. Friday was military night, and men in khaki and blue predominated. Saturday, the closing day, brought in large crowds from the country.

A majority of the local dealers have a large number of unfilled orders on hand. Because of road conditions they have been unable to drive the cars from the factories and consequently the orders have multiplied. They expect to start the cross-country work within the next week.

The medium-priced car seemed to score the biggest hit at the show. Dealers in these cars benefited by the exhibition.

They secured many prospects in addition to making sales.

H. B. Pinkerton, president of the association, and one of Peoria's leading automobile men, declared that he looked for the biggest and best year in the history of the automobile.

"The only trouble we are encountering is getting cars, but this can easily be handled from now on by the cross-country driving," said Pinkerton. "There are plenty of people in this vicinity who want cars and it's up to the dealers to get them. Rail conditions here are like everywhere else—bad."

W. E. Johnston, another prominent dealer, substantiated the statement of Pinkerton. He declared that without a doubt this will be a big year for Peoria dealers.

Patrons to the show were forced to pay 3 cents war tax this year. The dealers set the admission at 27 cents, which, with the war tax, brought it to 30 cents.

St. Louis Used Car Show Successful

ST. LOUIS, March 18—While sales were above expectations, the attendance of the public at the used-car show last week was not as great as had been anticipated. In the absence of corrected figures Manager R. E. Lee estimates the attendance at 1000 daily and the number of cars sold at slightly more than 100, about 75 per cent of the cars shown at one time.

These sales were those made in the show rooms. He hopes to get a report on sales made at the used-car salesrooms to persons taken there from the show because they did not find exactly what they wanted at the show.

More than a dozen such sales have been reported, and it is believed that these are only a part.

The attendance the first night was the best of the week, but the exhibitors now realize that to have made the show an attraction they should have exhibited older cars than they did. The class of the displayed vehicles was too good to serve as curio attractions. Many 1917 cars were displayed and more 1916 than any other year; a few from 1914 and only two or three as old as 1913.

None of the old tub-shaped bodies were there. The public that went expecting to see an illustrated history of motor car building was disappointed. The best attractions were de luxe cars that had been owned by rich young men. But these did not survive the second day.



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The price of the cars exhibited averaged more than \$700. The buyers and spectators alike were disappointed at the lack of light cars. A Buick roadster, light model of 1913, was a good attraction. It was priced at \$275. The cheapest car shown, except one Ford, sold the first day for \$250. The bulk of the exhibits appeared to be of Packard, Cadillac and Hudson type. A Cadillac was sold for \$2,250.

The cars were in excellent condition and appearance, which caused the newspaper writers to say from the start that the show was too good for a used-car show and not good enough for a real automobile show.

80 Spaces Now Sold for Chicago "Exchanged" Show

CHICAGO, March 18—Chicago's second annual exchanged automobile show will be held in the Coliseum for nine consecutive days, beginning March 30. Whereas only forty spaces were sold last year, over eighty have been sold to date. A year ago only 75 per cent of the Coliseum floor was used, while this year all of the main building and the annex also will be devoted to the show.

Car exhibits will occupy the center spaces in the Coliseum, accessories will be located under the balcony, and the Coliseum annex will be devoted to trucks and truck-forming attachments. The expense of the show this year already has been covered by the sale of space and a comfortable profit is now in the treasury, which, together with the sale of tickets and the further sale of space, will insure the return of a large part of the amount exhibitors pay for their spaces.

Davenport Visits Clinton

DAVENPORT, IOWA, March 14—About fifty of the dealers from this city attended the Clinton automobile show last week. They all wore badges and went over in a special train. They were entertained at the hotel by the Clinton dealers, and expect that the Clinton people will attend an open house week that is to be given soon in this city.

Lozier Still Moving

DETROIT, March 14—The Lozier Motor Car Co. is still making cars on order. The production is 5 cars daily and it is steadily increasing. The company has orders for six months. The officers of the company are: Theo. Friedberg, president and treasurer; Henry Butzel, vice-president and secretary.

Chicago Trade Body Elects Bird President

C. R. Dashiell Made Vice-President and Thos. Hay Secretary—Hold Banquet Next Month

CHICAGO, March 16—The annual meeting and election of officers of the Chicago Automobile Trade Association was held Monday. The following officers were elected:

President, Geo. H. Bird, Bird-Sykes Co., Paige; vice-president, C. R. Dashiell, Dashiell Motor Co., Dodge; secretary, Thos. J. Hay, Thos. J. Hay, Inc., Chandler; treasurer, Henry Paulman, H. Paulman & Co., Pierce-Arrow. Directors—J. F. Davis, Winton Co., Winton; L. A. Peil, Mitchell Auto Co., Mitchell; E. J. Kilborn, General Motors Truck Co., G. M. C.; E. P. Rowen, B. F. Goodrich Rubber Co.; W. J. Boone, Root & VanDervoort Engineering Co., Moline.

Contrary to the regular custom of the association, the event was purely a business meeting. The association's annual banquet will be held some time within the next month.

New Shaw 2½ to 3-Ton Truck

CHICAGO, March 17—A new 2½ to 3-ton truck known as the Shaw truck will be made by the Walden W. Shaw Co. It is expected that 200 will be assembled this year. The power plant is of the unit type, using a 4¼ x 5¼ Continental engine with a dry multiple disk clutch and a three-speed Brown-Lipe gearset. A cast shell radiator is used with pump circulation for cooling. Hotchkiss final drive is used through a Timken

worm drive axle geared 8.5 to 1. The wheels are 36 by 6 rear and 36 by 4 front. The wheelbase is 144 in. with a loading space of 115 in. back of the cab. The frame is constructed of 6-in. channel section. The governor speed of the truck is 15 m.p.h. The price is \$2,750 f.o.b. Chicago.

New Boston Paige Dealer

BOSTON, March 16—The Paige Detroit Co. of New England has been reorganized, and it starts off under a new regime. W. S. Jameson is treasurer and F. E. Skeetop secretary, with Walter B. Hennigan sales manager. The company still retains the building on Commonwealth Avenue. Jameson was formerly identified with the New York and Philadelphia agencies of the company, and Skeetop had charge of the wholesale department in New England.

Reo's Daily Production Is 60 Trucks and 80 Cars

LANSING, MICH., March 17—The Reo Motor Car Co., is turning out sixty motor trucks and eighty passenger cars a day. The factory is working 24-hr. shifts. Practically all shipments are sent to the middle west and east. Two-thirds of the production is driven away; twenty trucks left for Boston and thirty will leave for New York to-morrow. It is planned to have no trucks sent east by freight; all going in this direction will have to go under their own power. The company is now sending out announcements to its dealers advising them that a price increase is forthcoming April 1, but no figures are stated. Passenger cars have the biggest sale in the middle west and south.

Motor Car Securities Quotations

	March 16, 1918			March 16, 1918	
	Bid	Asked		Bid	Asked
*Ajax Rubber Co.	52	54	*Maxwell Motor Co., Inc., com.	28	29½
*J. I. Case T. M. Co., pfd.	85	87	*Maxwell Motor Co., Inc., 1st pfd.	59	60
Chalmers Motor Co., com.	4	6	*Maxwell Motor Co., Inc., 2d pfd.	22½	24½
Chalmers Motor Co., pfd.	30	40	Miller Rubber Co., com.	130	133
*Chalmers Motor Co.	84	85	Miller Rubber Co., pfd.	95	98
Chevrolet Motor Co.	117	121	Packard Motor Car Co., com.	95	100
*Fisher Body Corp., com.	34	36	Packard Motor Car Co., pfd.	90	93
*Fisher Body Corp., pfd.	80	87	Paige-Detroit Motor Car Co.	18	20
Fisk Rubber Co., com.	50	53	Peerless Truck & Motor Corp.	16	17
Fisk Rubber Co., 1st pfd.	98	103	Portage Rubber Co., com.	110	112
Fisk Rubber Co., 2d pfd.	70	75	†Reo Motor Car Co.	17	19
Firestone Tire & Rubber Co., com.	94	98	*Saxon Motor Car Corp.	9	9½
Firestone Tire & Rubber Co., pfd.	97	99	Standard Motor Construction Co.	11	12
*General Motors Co., com.	122½	125	*Stewart-Warner Speed. Corp.	54	56
*General Motors Co., pfd.	81	82	*Studebaker Corp., com.	46	47
*B. F. Goodrich Co., com.	43	45	*Studebaker Corp., pfd.	91	94
*B. F. Goodrich Co., pfd.	99	100	Swinehart Tire & Rubber Co.	22	35
Goodyear Tire & Rubber Co., com.	138	141	United Motors Corp.	28½	28¾
Goodyear Tire & Rubber Co., pfd.	99	100	*U. S. Rubber Co., com.	54	56
Grant Motor Car Corp.	2	4	*U. S. Rubber Co., pfd.	101	102
Hupp Motor Car Corp., com.	3	3½	*White Motor Co.	42	43½
Hupp Motor Car Corp., pfd.	78	83	*Willys-Overland Co., com.	18½	18¾
International Motor Co., com.	18	22	*Willys-Overland Co., pfd.	81	82
International Motor Co., 1st pfd.	50	55	Standard Parts Co.		70
International Motor Co., 2d pfd.	20	25			
*Kelly-Springfield Tire Co., com.	45	46½			
Kelly-Springfield Tire Co., 1st pf.	76	85			
*Lee Rubber & Tire Corp.	12½	13½			

*At close March 16, 1918. Listed New York Stock Exchange. †Par value \$10.



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Southern Dealers Doing a Good Tractor Business

Motorization of Many Farms as a Result of Increasing Labor Shortage

GREENSBORO, N. C., March 18—In the South, taken as a whole, the farm tractor has been adopted by only a few farmers, but with the increasing scarcity of labor here, and the growing necessity for the production of abundant crops, the adoption of this mechanical means of plowing and accomplishing other work usually done by horses and mules is being forced upon the communities.

In addition to the scarcity of labor, which in this state is becoming alarmingly serious, the high prices and costly upkeep of horses and mules, added to the much heavier expense of the very inferior labor that is to be obtained, have compelled many of the larger farmers to be on the lookout for the best type of utility tractor.

While there are only a few tractors in use in this section at the present time, there is no doubt these machines are destined to become ordinary adjuncts upon North Carolina farms within a few years at the longest, and it is the far-seeing farmer who equips his farm first with the most modern machinery, thus forestalling as far as human ingenuity can the inevitable labor shortage that is sure to come either with a continuance of the war or that unexpected contingency—an early peace.

North Carolina farmers already are considering this problem seriously. The draft registration and voluntary enlistments have denuded the farms of large numbers of white laborers; the high prices paid by the government for work of all kinds at and near cantonments and encampments and on ship construction has drawn still larger numbers of young men away from the soil. There is left only the most worthless element of the negro race, and these for the most part are refusing to work at any price.

While the situation with the farmers is somewhat serious, the number of automobiles on the country roads would not indicate that there is any dearth of money in the section. The warm spring weather is bringing everybody into the fields and woods. The presence of troops in many sections is accelerating the automobile traffic. Tourists will not wait for the cold months to come into the south this year.

There is already a constant stream of automobiles taking mothers, sisters and sweethearts to visit the soldiers preparing for the great adventure in France.

The automobile is being substituted for the railroads in many instances in this connection because of the transportation difficulties encountered in travel by rail. Many of the trains have been taken off altogether, and those that are running are on inconvenient schedules, are overcrowded and are provided with insufficient accommodations.

The labor condition in the south is responsible for a visible increase in the use of motor vehicles in the cities. The high cost of feed for live stock is forcing the exchange of horses and mules for other means of delivery transportation, and it is a safe bet that a re-exchange back to old conditions will never be made. Good roads have made it possible to make deliveries far into the country without appreciable loss of time, thus extending the territory of commercial enterprises.

Dealers are doing an unusually good business this spring. Not only are the farmers in the market for trucks and tractors, but the demand for passenger vehicles is steadily increasing. The difficulty of securing deliveries from factories is being partially overcome by sending mechanics from the garages to the manufacturing centers to bring the machines in under their own power. A recent demand for machinists for army purposes has, however, had the effect of taking a number of these men from their employment, and the trade is hampered to that extent.

Garagemen state that they are able to sell all the machines they can secure. Many of them maintain a waiting list. The fact that the price of a number of the popular makes of machines has been increased has not appreciably lessened the demand for these machines. It is apparent that the country needs cars.

Stromberg Earns \$6.37 a Share

CHICAGO, March 16—The Stromberg Motor Devices Co. reports net profits for 1917 of \$318,819 before the deduction of war taxes. This is equal to \$6.37 a share on the 50,000 shares of common stock outstanding, as compared with \$5.56 in 1916. The company is prepared to manufacture 35,000 carbureters a month, and unfilled orders covering deliveries to Aug. 1 already call for more than 25,000 a month.

100,000 Men for Ford Tractor Work

DETROIT, March 13—Henry Ford will eventually employ 100,000 men in the manufacture and distribution of his tractors. At the Dearborn plant, which is temporary, 2000 men are now working, but this number will soon be increased to 25,000. Following the building of a permanent \$3,500,000 plant, the distributing shop will be used as one of the numerous assembling plants.

Tractor Men Organize National Association

26 Manufacturers Meet in Chicago and Perfect Semi-Permanent Conference

CHICAGO, March 14—Twenty-six manufacturers of tractors met at the Congress Hotel to-day and organized an "informal and voluntary" association of tractor manufacturers under the name of the National Conference of Tractor Manufacturers. The conference was called by Daniel F. Charnichiel, of the New Age Tractor Co., Minneapolis. Clifford Thorne, attorney for the Square Turn Tractor Co., Chicago, acted as secretary.

The Chicago meeting grew out of a conference of a few of the tractor manufacturers which was called to meet recently at Washington, D. C., by A. Violette, of the Wayne Tractor Co., Detroit, Mich.

A semi-permanent organization was perfected, with the direction of the affairs of the association vested in an executive committee consisting of D. F. Charnichiel, Minneapolis, chairman; F. H. Cozzens, New York, vice-chairman; W. B. Gleeson, Minneapolis, secretary; G. S. Albaugh, Chicago, treasurer, and A. Violette, Detroit.

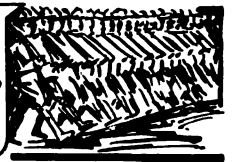
In accordance with a resolution introduced by Albaugh, and which was passed unanimously, a Tractor War Service Committee was appointed, consisting of James R. Collins, Peoria; D. F. Charnichiel, Minneapolis; A. Violette, Detroit; W. R. Gleeson, Minneapolis; H. D. Lauson, New Holstein, Wis.; G. S. Albaugh, Chicago; F. R. Beeman, Minneapolis; F. H. Cozzens, New York; J. M. Robinson, Peoria; John Hurlbut, Detroit; D. Fitchian, Waterloo, Iowa; R. T. Evans, Hudson, Ohio, and H. W. Adams, Minneapolis.

According to Chairman Charnichiel the purposes of the conference are to eliminate some of the unfair practices which have crept into the tractor trade, to stabilize the business of building tractors, to provide an organization in which all shall have the right to a free expression of opinion and which shall not be dominated by a single personality, to gather statistics regarding the tractor industry to be presented to the Government in substantiation of the contention that the tractor industry is an essential, and thus to win the confidence of the Government and secure a greater measure of preferential treatment.

It is hoped to secure the active cooperation of all of the tractor manufacturers in the country, all of whom will be



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asked to join the association, and to offer the combined efforts of the industry to the Government to work in harmony with the agricultural department and the food commission to the end that the tractor industry may be stimulated and sustained and that the food production capacities of the country may be increased.

The following companies were represented at the conference:

The Peoria Tractor Corp., Peoria, Ill.; Stinson Tractor Co., Minneapolis; Beeman Garden Tractor Co., Minneapolis; Gilson Mfg. Co., Port Washington, Wis.; Strite Tractor Co., New York; Gile Tractor & Engine Co., Ludington, Mich.

Acme Harvesting Machine Co., Peoria, Ill.; National Tractor Co., Chicago; the John Lauson Mfg. Co., New Holstein, Wis.; Interstate Tractor Co., Waterloo, Iowa; Appleton Mfg. Co., Batavia, Ill.

Common Sense Gas Tractor Co., Minneapolis; Leonard Tractor Co., Jackson, Mich.; Topp-Stewart Tractor Co., Clintonville, Wis.; Lang Tractor Co., Minneapolis; Reed Foundry & Machine Co., Kalamazoo, Mich.

Square Turn Tractor Co., Chicago; Elgin Tractor Corp., Piqua, Ohio; New Age Tractor Co., Minneapolis; Wayne Tractor Co., Detroit; Illinois Silo & Tractor Co., Bloomington, Ill.; F. C. Austin Co., Inc., Chicago; Gray Tractor Co., Inc., Minneapolis; Leader Tractor Co., Des Moines; Andrews Tractor Co., Minneapolis; Evans Mfg. Co., Hudson, Ohio.

Southwest Wants Cars

DETROIT, March 13—All manufacturers here report good business in the Southwest. They state this part of the country is very prosperous; even the people formerly of the poorer class are buying expensive cars. Cadillac is enjoying the biggest percentage of increase over normal in its history from the Southern States. The Middle West is showing gratifying increases in sales and New York State and the New England States are coming back to their own.

Cadillac is not shipping any cars except limousines to nearby points. Ohio, Indiana, Michigan and certain parts of Illinois are in the excluded territory. It is found very unsatisfactory to drive limousines, therefore they are still being shipped when moved at all.

Saxon is having heavy demands from Canada. The company just received an order from Toronto for five carloads. Due to heavy snows Canada could not obtain cars and is now experiencing a shortage.

Ninety per cent of the production of the Paige-Detroit is being driven away. Cars have gone as far as Fargo, N. D., and Denver.

300 Duplexes a Month

LANSING, MICH., March 18—The Duplex Truck Co. of Lansing, Mich., states that it will increase its production to 300 trucks a month for the remainder of the year.

Bay State Fights \$1,500,000 Surtax

Drive Started to Make Motorists Pay Huge Sum Because It Is the Easiest Way

BOSTON, March 16—The drive is on to grab \$1,500,000 out of the Massachusetts motorists as a surtax this year. A hearing was staged last Thursday before the legislative committee on taxation, and to the motor representatives it was apparent that they had little chance.

In less than half an hour after hearing the arguments Chairman Nichols, of the Senate, who conducted the hearing, had a sub-committee appointed to draft a bill. It was apparent that he was anxious to have it pushed along, for in his questions to Senator Gifford, who spoke for the measure, he inquired if the fees now received from motorists were not inadequate for road maintenance. The latter knew nothing about it, and so he could not answer. The highway commission was quoted as being in favor of the bill, but that body denies this statement.

Senator Gifford stated flatly in introducing the measure that it was the easiest way in which to get the money because the motorists were listed. That was about his only argument other than that the state needed some additional revenue.

Backing him up was A. C. Ratchesky and James J. Phelan, of the Public Safety Committee, and George Washburn, of the Massachusetts Real Estate Exchange. Neither of these men could advance any other argument than that of Senator Gifford. It was plain that the backers of the measure had merely picked this method out instead of giving the matter of taxes any consideration.

John B. Sullivan, Jr., for the motor dealers, showed that the state now gets \$2,000,000 in fees, \$2,500,000 in property taxes, and the new Federal tax will cost motorists \$1,250,000 more. He showed that it was an unfair tax, merely shifting the burden from where it belonged to one class of people. He claimed that it was rank class legislation, and he doubted if it would hold in law.

Arthur Cundy, president of the Massachusetts Automobile Operators Association, objected to the entire bill, and particularly the increase in the tax upon chauffeurs. Joseph S. Donovan, Studebaker dealer, said he never heard of anything quite so bad as this, and Secretary James Fortesque, of the Massachusetts State A. A., said all his clubs were opposed to it.

James T. Sullivan, for the Bay State A. A., told the story of how the plan was

originated by a few men, trying to get \$1,000,000 of the fees into the hands of the Highway Commission, but were turned down because it was not legal to use the money for general revenues.

There were others opposed to the bill, but the committee seemed to have its mind made up before the hearing, for when it ended they talked with some of the motor representatives and admitted it was a case of get the money quickly in any manner. Representatives of labor organizations also opposed the measure.

Now the motor representatives have started a campaign against it. And they are going to take the fight right up to the Governor if the bill passes. The newspapers will aid in the fight also with stories and editorials. And the matter will not end if the Governor signs it, for some of the motor people intend to refuse to pay the tax and test it.

Also they plan to get busy next fall and organize the men in the garages and service stations, and circularize others in the industry, and make it an issue in politics, showing how the Republican party has never been fair to the motor industry. As Governor McCall and Senator Weeks will be fighting for United States senatorships the men in the motor industry will be used to turn the tide should the Governor favor this bill.

The measure calls for a tax of \$5 for owners of cars paying a \$15 fee now, and \$10 for those paying more; \$2.50 for trucks per ton; \$1 for motorcycles; \$2 for operators and drivers; \$5 each for dealers' cars, all in addition to the present fees.

Another bill heard last week would compel dealers to hold all cars they take in trade at least seven days unless the police officials grant waivers. The motorists opposed this as unnecessary. The police and insurance men want it as an aid against theft, but it would not stop the theft of one car.

N. A. C. C. Checking Up Production

WASHINGTON, D. C., March 17—The National Automobile Chamber of Commerce is sending to each manufacturer of automobiles a blank statement to be filled in and returned to the National Automobile Chamber of Commerce showing the number of cars produced since the beginning of the fiscal year, materials on hand, commitments, and what production would be without curtailment and what it will be with a 30 per cent curtailment arranged between the Fuel Committee of the Industry and the Fuel Administration. The chamber will file these reports with the War Industries Board, which, while reports are not sworn to, will retain the right to order special investigations of any company or companies.



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Advances in Prices of Winton and Marmon

**Former Goes Up \$200 for 33-Hp.
Cars and \$350 for 48-Hp.—
Marmon Jumps \$200**

CLEVELAND, March 18—The Winton Co. has increased the factory prices of its 33-hp. cars \$200 and its 48-hp. cars \$350. The new prices compare as follows:

Model 33-H.P.	Old Price	New Price
2-Pass. Roadster	\$2950	\$3150
3-Pass. Roadster	2950	3150
Cloverleaf	2950	3150
4-Pass. Touring	2950	3150
5-Pass. Touring	2950	3150
6-Pass. Touring	3000	3200
7-Pass. Touring	3000	3200
Coupelet	3265	3465
7-Pass. Touring with permanent top	3600	3800
4-Door Convertible Sedan	4000	4200
Limousine	4200	4400
48 H.P.		
Roadster	3500	3850
Cloverleaf	3500	3850
Touring car, 4-, 5-, 6- and 7-Pass.	3500	3850
Limousine	4500	4850
Sedan	4750	5100
Limousine Landaulet....	4750	5100

Marmon Prices Increased

INDIANAPOLIS, March 19—Factory prices of open models of Marmon cars were advanced \$200 yesterday. The prices are:

Model	Old Price	New Price
7-Pass. Touring Car.....	\$3550	\$3750
4-Pass. Roadster.....	3550	3750
5-Pass. Touring.....	3500	3700
Chassis with cowl.....	3250	3450

There has been no change in the price of the closed cars.

Sport Show in Montreal

MONTREAL, March 18—The board of directors of the new Montreal Bicycle & Motor Cycle Association last night elected the following officers: President, Arthur Ross; vice-president, R. A. Radmore; treasurer, J. McNiece; secretary, J. Holden; manager, T. C. Kirby, who also manages the motor car associations.

Headquarters were established at the Windsor Hotel and weekly meetings arranged for.

It is the intention of the association, in addition to the sportsmen's show, to hold a series of reliability runs and parades during the coming season, and to put on a three-day bicycle, motorcycle and motor car race meet in Montreal.

It has been decided to hold the sportsmen's show at the Auditorium, Ontario and Bleury Streets, from May 4 to 10 inclusive.

The entire proceeds from the tickets will be given over to the various local patriotic societies, schools and hospitals

and the sale of tickets will be exclusively handled by the ladies of the various societies. Many applications for space have already been received. Floor plans and application forms can now be obtained.

Bicycles, motorcycles, side cars, motor boats, sporting goods of every description and car accessories will be shown by the various exhibitors.

The following have been appointed the 1918 show committee: Messrs. Ross, McNiece and Holden, with T. C. Kirby as show manager.

Greenboro's Show Turns Out well

GREENBORO, N. C., March 16—Greenboro's first automobile show proved to be one of the most attractive held in the South. There were sixty cars on display. The show was said to be the finest and most pretentious held south of Baltimore.

Manufacturers look upon Greenboro as the most accessible place in the state for the distribution of cars. In the five counties surrounding this city there are probably five times as many car owners as in any other five counties in North Carolina.

John Kelly, of Philadelphia, managed the show. The automobile dealers of the city and state gave him assistance and co-operation. Motor trucks occupied an important position in the show, and were of great interest. A space was provided for dancing in the evening.

Prominent Tradesmen Assume New Duties

C. E. Lindsey, formerly manager of the Windsor branch of the Swedish Crucible Steel Co., Detroit, has been promoted to the position of sales manager.

R. C. Bridge, who has been associated with the Willard Storage Battery Co. on the Pacific Coast, has been appointed manager of the San Francisco district. He will have headquarters at 1380 Bush Street, San Francisco.

C. S. Harper, formerly district manager for the Willard Storage Battery Co. at San Francisco, will operate the Willard service station at Seattle.

L. R. Johnson, for the past 3 years auditor of the Jones Motor Car Co., Wichita, Kan., has been elected treasurer of the company.

O. R. Arenschield, assistant manager of the Overland branch at Columbus, Ohio, has been appointed retail sales manager for the Overland Automobile Co. of St. Louis. He took with him to St. Louis, H. G. Putnam and W. A. Seaver of the Columbus sales staff. The St. Louis position has been vacant during the winter.

L. S. James, one of the first truck specialists in St. Louis, has been made manager of the newly organized truck department of the De Luxe Automobile Co. of that city, which will sell the Bethlehem truck.

Walter Campbell has been appointed assistant supervisor of materials at the Harroun Motors Corp., Wayne, Mich. Campbell

New York to Adjust Headlight Restrictions

**Bill to Be Introduced in Legislature
Will Be Acceptable to
Motorists**

ALBANY, N. Y., March 18—A bill will soon be introduced in both houses of the legislature governing the use of headlights which will be acceptable to all motor car interests. The conference at which the proposed bill was agreed upon was representative of the state and motor car interests.

The conference followed a hearing before the senate committee on pending motor car legislation, including the Hewitt-Wells bill regulating the use of headlights. The Cromwell bill, re-instating, after the war, without second payment of an original license fee, chauffeurs who serve in the military or naval service was supported.

Those present at the conference opposed the Towner-Donahue bill, reducing from eighteen to seventeen years the age limit for drivers of motor cars. They also opposed the Taylor bill, requiring an indemnity bond of \$5,000 before an owner can obtain a license to operate an automobile, and the Welsh bill requiring the compulsory use of mirrors on automobiles.

was formerly with the Hupp Motor Car Co.

E. L. Lick has resigned as assistant manager of the car order department of the Willys-Overland Co., Toledo, to become manager of the car order department of the Simons Sales Co., Toledo.

The Siegel-Zeckendorf Co., Detroit, has added the Chandler to its agencies, including the Cole and Peerless.

Arthur J. Hill has been appointed general manager of the F. E. Stuyvesant Motor Co., Cleveland, distributor of the Hudson. Hill was formerly managing director of the racing affairs of the Hudson Motor Car Co., Detroit.

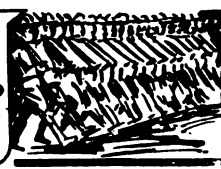
George Borland, former Studebaker branch manager at Saginaw, Mich., has joined the Simons Sales Co., Detroit, as representative on the road in Michigan.

Frank E. McDonald has been appointed a district sales manager of the Saxon Motor Car Corp., Detroit. He was formerly wholesale manager for the Mabbett-Bettys Motor Car Co. of Rochester, N. Y., distributor of the Cadillac.

William P. Barnhart has been made assistant director of sales for the United States Motor Truck Co. of Cincinnati, with offices in Washington, D. C., where he is handling the allied business of the Stewart Iron Works and the United States Motor Truck Co. The Stewart Iron Works is the company from which the United States Motor Truck Co. originated.



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Members Coming Into National Association

President Vesper Reports Increasing Growth—Central West Supports the Idea

ST. LOUIS, March 18—President F. W. A. Vesper, of the National Association of Automobile Dealers, reports membership applications in considerable numbers this week from Little Rock, Ark., and from Oklahoma. The Oklahoma list came from D. E. Castle, a Buick dealer at Muskogee, who has enlisted in the work.

The Little Rock applications were due to Joseph A. Schlecht, who proved himself a 100 per cent worker on his first venture into the membership enrollment campaign. Schlecht, president of the St. Louis Automobile Dealers and Manufacturers' Association, was invited to speak before the Little Rock Association during the show there. As a result, President M. C. Rowe, president of the Little Rock association, filed membership applications for the entire membership this week, coming in person to see that it was understood.

Schlecht late last week left on a business trip, to include Springfield, Mo., and Memphis, and he arranged for meetings in both cities, where he could explain the national association movement.

President Vesper spoke at Des Moines Monday to enlist the local association members, all of whom are national members, in getting their sub-dealers into the national, which they promised to do.

The next move will be to extend the membership campaign to the Pacific Coast states. A number of St. Louis dealers have pledged 100 per cent in the national association, and this movement, through distributors, will be carried throughout the territory now organized.

Texas Convention March 27

SAN ANTONIO, TEXAS, March 18—It is expected that the annual convention of the Texas Automobile Dealers' Association, which is to be held here March 27 and 28, will be largely attended. President J. E. Butler is arranging an attractive and instructive program.

The Chamber of Commerce of San Antonio is co-operating with the association in preparing plans looking to the success of the meeting. An elaborate program of entertainment of the visitors has been mapped out. President Butler is urging the hearty co-operation of every owner of automobiles, and especially of every dealer in the automobile line throughout the state.

While the automobile business will be the topic of the convention, President Butler claims this convention will be a great stimulus to the construction of good roads and highways.

St. Louis Adds 11 Members

ST. LOUIS, March 18—Eleven members were added to the rolls of the Motor Accessory Trade Association at the monthly dinner Wednesday. The speaker was W. D. Vandiver, United States sub-treasurer, who asked the complete patriotic support of the members. The new ones are:

Roberts Motor Tire Co., Robinson Motor Car Co., Barnett Sales Co., Bugbee-Manning Sales Co., Wayne Oil Tank Co., Manufacturers' Agency Co., J. B. Sickles Saddlery Co., Straus Saddlery Co., H. G. Turley Gear Machine Co., Sam Vendig, Philip H. Hale.

La Salle County Organizes

LA SALLE, ILL., March 17—Motor car dealers of La Salle County met here this week and organized the La Salle County Motor Trade Association. Matthew Kauff of Peru was elected president, and William Kinder of La Salle, secretary-treasurer. J. E. McGuirk, representing the Illinois Garage Owners' Association, was present from Chicago, and pointed out the advantages of co-operation and harmony. It was voted to affiliate with the state body. Meetings will be held twice a month. These gatherings will be held alternately in the important cities of the county.

Will It Ever Be?

SEVERAL dealers at the St. Joseph Automobile show expressed the hope that co-operation among dealers and manufacturers would reach this altruistic point soon:

"When the manufacturer and distributor who absolutely could not make deliveries would allow the dealers to arrange for the delivery of a competing car to a customer who needed motor equipment."

One or two St. Joseph dealers have been put off with promises of deliveries and have been forced to disappoint their customers. These customers, lacking the cars, may decide that they can get along without cars—or trucks or tractors. Another dealer might have cars, trucks or tractors that would meet the immediate need. Most dealers have a delicacy about sending a customer to a competitor as long as there is a bare chance of getting some of his own line to deliver. The suggestion has been made of a clearing house through which customers could be sent when their own dealers cannot fill their needs.

Membership Drive in Ohio Brings Results

Ohio Automobile Trade Association Adds More Than 100 in Month—New Members

COLUMBUS, OHIO, March 15—W. A. McCurdy, the new manager for the Ohio Automobile Trade Association, takes charge to-day. The offices of the organization have been moved from the Virginia Hotel to the twelfth floor of the Columbus Savings & Trust Building, where they will be close to Arthur M. Crumrine, the publicity manager of the organization. During the past month more than 100 members have been received and applications are coming in at the rate of about five daily. Get-together meetings are being held at various points in the state. A. E. Mitzel, president of the association, and Arthur M. Crumrine generally speak to the assembled automobile dealers and garagemen to explain the objects of the organization.

A rousing meeting was held at Kenton, when 25 applications were received. Another meeting was held in Akron March 8, when quite a few members were secured. A Toledo meeting held recently was addressed by Mr. Mitzel.

A meeting of the Columbus Automobile Trade Association was held recently, when Mitzel was again the principal speaker. He outlined the purposes of the association and asked for co-operation to make the organization the strongest in the country.

At a recent meeting of the board of directors H. O. Brunton of Cincinnati was named as an additional director, making the twelfth and last on the board. The officers are: A. E. Mitzel, Canton, president; F. E. Schmitt, Dayton, vice-president; M. C. Toomey, Canal Dover, second vice-president, and F. E. Avery, Columbus, treasurer. The directors are: Andrew Aubel, Akron; H. O. Brunton, Cincinnati; W. L. Durham, Cleveland; J. H. McGraw, Bellefontaine; Victor Moon, Toledo; J. R. Noecker, Circleville; C. E. Schmitt, Hamilton, and Howard Wiley, Springfield.

The officers of the association are busy making a record of all automobile and motor mechanics employed in the sales offices, repairshops and garages in Ohio to aid the federal government in its work of conscripting mechanics for war service. This work is not yet completed and statistics are not yet tabulated.

Many garagemen in the state are trying female labor in the capacity of washers and mechanics. So far this ex-



Buy Liberty Bonds



periment has been successful, but it is still too early to test it completely.

Little Rock Joins N. A. D. A.

LITTLE ROCK, ARK., March 16—The Little Rock Automobile Dealers Association has voted to affiliate with the National Automobile Dealers Association, following an address to the association by President Joseph A. Schlecht of the St. Louis Automobile Manufacturers & Dealers Association. The first annual Little Rock show is being held this week and is proving successful. Business prospects in this section are good.

The show was held in Liberty Hall, 150 by 150, originally built for a revival

meeting, with a big tent annex. The 37 exhibitors showed 68 automobiles of 46 makes. Eleven makes of trucks were displayed, and there were seven exhibitors of accessories.

The public gave the show enthusiastic support, the attendance, which was very large the first day, increasing each day. Visitors came from all parts of the state, as well as from points in Oklahoma, southern Missouri and Tennessee. The Little Rock newspapers got out special editions with from 32 to 36 pages devoted exclusively to the automobile show.

The Little Rock Automobile Association was organized only about two weeks before the show.

Charles A. Price, automobile advertising manager for the *Arkansas Democrat*, last fall visited northern and eastern automobile centers, talked with manufacturers, dealers and officials of dealers' organizations. When he returned the first thing he started was agitation for a dealers' association and an annual automobile show.

The success of the first show has made the dealers unanimous for the annual show, and plans for the 1919 event are already under way.

The officers of the Little Rock Automobile Association are: E. M. Rowe, president; C. E. Faulhaber, vice-president; S. R. Thomas, treasurer, and A. W. Park, secretary.

Scrap Metal Prices

NEW YORK, March 15—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age*:

	Cents per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy	16.25 to 16.50
Brass, light	12.25 to 12.50
Heavy machine composition.....	23.75 to 24.00
No. 1 yellow rod brass turnings.....	13.50 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.50 to 6.75
Lead, tea	5.25
Zinc	6.00

300 Dealers at Salt Lake City Show

SALT LAKE CITY, March 14—The ninth annual Salt Lake City show closed on March 2 and was the most successful ever held in the city. More than 300 out-of-town dealers from Utah, Idaho and Nevada attended, and most of the distributors closed good contracts. The tractor dealers in particular report many new dealers. The annual banquet of the association was held at the Hotel Utah on Feb. 27 and considerable business was transacted.

Friday and Saturday, March 8 and 9, was set aside as road days for the cities and towns on the Arrowhead Trail in Nevada and Utah for road improvement, and the dealers in these towns will start a publicity campaign to make this trail better known. On March 1 all the Ford agents in this territory went on a cash basis, and their example was followed by about 75 per cent of the other dealers.

Maintenance of Paige Cars

(Continued from page 27)

brake band and tighten the cap screws in the split collar firmly in place by means of a heavy screwdriver and a wrench to insure additional leverage.

A change has recently been made in the pinion shaft of the Model 6-38 by the addition of two nuts and a lock washer at the front side of the inner race of the rear pinion shaft bearing, the idea being to prevent any possibility of the inner race of this bearing turning on the shaft. The later type of shaft, which has a thread added with each nut, will be used by the service department in making all repairs or replacements. In other words, the first type will be considered obsolete.

In case the pinion shaft has been removed from the housing and the bearings, it will be necessary in reassembling these parts to first lift the two nuts W and X and the lock washer on to the shaft from the rear. Next press the inner race of the rear pinion shaft bearing onto the shaft with the shoulder of this race towards the rear. The balls and the ball retainer of this bearing should always be left attached to the inner race. Next insert the Woodruff key in the shaft and press the spiral bevel pinion J on the taper at the rear end of the shaft. Fasten this securely in position by means of a castellated nut and a cotter pin.

The outer race of the rear pinion shaft bearing, the adjusting sleeve C and the front pinion shaft bearing may then be assembled on the shaft at the front end of the pinion housing.

The alignment of the front wheels should be checked occasionally by jacking them up and noting whether they run. The toe-in should be 5/16 of an inch.

Axle and steering gear parts should be straight holed in an arbor press. It is practically impossible to straighten a bent steering spindle owing to its peculiar shape and the fact that it is usually bent at the base of the spindle. The objection to heating these parts is that it destroys the original heat treatment and leaves the material soft and unsuitable for use.

The Horse Without a Rider

(Continued from page 17)

decide you are going to put in a display window and a runway cabinet.

"The next thing to do is to find out what material is necessary for the building of these display places. You then order the material and when the material comes you have your men do the work or else you telephone for a carpenter and have him fix the job. If you merely sit around and decide in your own mind that the thing ought to be done and you guess some day you'll do it, you'll never get anywhere.

"What you must have is a plan of action. Ideas by themselves aren't any good. Action by itself isn't any good. There must be a plan. The dog that runs around in a circle and chases his tail is using up a lot of energy and displaying a lot of action, but he isn't working under definite plans. If he had a plan, this would tell him that he never could catch his tail no matter how long he chased, and he also ought to have sense enough to know that after he caught his tail it wouldn't be any good to him; it's always with him anyway.

"These are a few suggestions, Miller, and I wish you would go home and work out some business plans, then come down again after you get them started and let's see if there isn't something else I can do to help. The one thing I want to say, Miller, is that it is absolutely imperative for the welfare of my own business that you make some money and it is imperative for the welfare of the factory's business that both you and I make money.

"If we don't make money, the factory can't make money and if the factory can't make money, why that's the end of the Sennett motor car business. Furthermore, none of us can make a darn cent if we don't have business plans. That agency of yours down there is a fine young horse, but it needs a pretty good rider this year."

MOTOR WORLD GUIDE

Specifications
of the
Leading Cars

Revisions Are
Made in Table
Every Week

Model	Motor	S. A. B.	Ignition	Carburetor	Starting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x5 29.4 Remy	Stumbg	Remy	DD	3	122	34x4 SS	...	...	...	1595	...	1595	2150	2150	...	...
ALLEN	4-31x5 22.5 Conn	Stumbg	A-Lite	D	3	112	32x3 SS	...	...	...	11145	1095	...	...	1395	...	...
AMERICAN	6-31x5 29.4 G & D	Zenith	G & D	D	3	122	32x4 SS	...	...	...	...	1375	...	...	...	...	...
ANDERSON	6-31x5 25.3 Conn	Zenith	Weths	DP	3	120	33x4 SS	...	...	...	...	...	...	...	2165	...	...
DeLuxe	6-31x5 29.4	Zenith	Weths	DP	3	120	33x4 SS	...	...	...	...	...	...	...	...	...	...
APPERSON	8-31x5 33.8 Remy	Johnson Bijur	DP	3	130	34x4 SS	...	...	...	...	12550	...	2550	...	...	...	...
AUBURN	6-31x5 25.3 Remy	Radd	Remy	DP	3	120	34x4 SS	...	...	...	1345	1345	...	...	...	...	...
6-30-B	6-31x5 29.4 Delco	Radd	Delco	DP	3	131	35x4 SS	...	...	...	1685	1685	...	...	...	...	...
AUSTIN	4-31x5 22.5 E'mann	Stumbg	Delco	D	6	142	34x4 QD	...	...	...	3750	3750	4000	4550	5000	5250	...
Hy-King	12-31x5 39.6 Delco	Stumbg	Delco	D	6	142	34x4 QD	...	...	...	...	...	...	...	...	...	...
BIDDLE	4-31x5 22.5 West	Stumbg	West	DP	3	118	33x4 QD	...	...	...	2600	...	12650	...	4100	4000	...
BOUR-DAVIS	6-31x5 29.4 West	Stumbg	West	DP	3	118	33x4 QD	...	...	...	...	1785	...	...	...	...	...
18B	4-31x5 22.5 West	Radd	West	DP	3	118	33x4 QD	...	...	...	...	1680	...	...	...	...	...
BREWSTER	4-4 25 25.6 Boech	Zenith	U.S.L.	C	3	125	34x4 SS	...	...	...	7200	...	...	...	8400	8500	...
BRISCOE	4-31x5 16.3 Conn	Buick	A-Lite	C	3	104	30x3 C	...	...	...	825	825	...	...	...	...	...
BUICK	4-31x5 18.2 Delco	Marvel	Delco	C	3	106	31x4 C	...	...	...	795	795	...	...	1185	1845	...
E-4-34-35	6-31x5 27.3 Delco	Marvel	Delco	DP	3	118	34x4 SS	...	...	...	1265	1265	...	11695	...	...	...
E-44-45	6-31x5 27.3 Delco	Marvel	Delco	DP	3	124	34x4 SS	...	...	...	...	1495	...	...	...	...	...
E-49	6-31x5 27.3 Delco	Marvel	Delco	DP	3	124	34x4 SS	...	...	...	...	...	...	...	...	...	...
CADILLAC	8-31x5 31.2 Delco	Own	Delco	D	3	125	34x4 SS	...	...	...	2805	...	2805	...	3650	4145	...
57	8-31x5 31.2 Delco	Own	Delco	D	3	125	34x4 SS	...	...	...	...	...	...	...	...	...	...
CASE	6-31x5 29.4 Weths	Radd	Weths	D	3	125	35x4 SS	...	...	...	11875	...	1875	...	...	...	...
CHALMERS	6-31x5 25.3 Remy	Stumbg	Weths	DP	3	117	32x4 SS	...	...	...	1365	1365	1450	1625	1850	2925	...
6-30	6-31x5 25.3 Remy	Stumbg	Weths	DP	3	117	32x4 SS	...	...	...	...	...	...	...	...	...	...
CHANDLER	6-31x5 29.4 Boech	Radd	Weths	DP	3	123	34x4 SS	...	...	...	11595	11675	1595	2195	2295	2895	...
CHEVROLET	4-31x5 21.7 Remy	Zenith	A-Lite	C	3	102	30x3 C	...	...	...	660	685	...	...	1090	...	...
490	4-31x5 21.7 Remy	Zenith	A-Lite	C	3	108	33x4 SS	...	...	...	935	935	...	...	1475	...	...
FA	8-31x5 36.4 Remy	Zenith	A-Lite	C	3	120	34x4 SS	...	...	...	1385	1385	...	...	...	...	...
D	8-31x5 36.4 Remy	Zenith	A-Lite	C	3	120	34x4 SS	...	...	...	...	...	...	...	...	...	...
COLE	8-31x5 39.2 Delco	Stumbg	Delco	C	3	127	33x5 SS	...	...	...	2395	1995	2195	2495	2695	2795	...
870	8-31x5 39.2 Delco	Stumbg	Delco	C	3	127	33x5 SS	...	...	...	...	...	...	...	...	...	...
COLUMBIA	6-31x5 25.3 A.Kent	Stumbg	W.Land	DP	3	115	32x4	...	...	...	11495	1350	...	...	...	...	...
C&D	6-31x5 29.4 Delco	Miller	Dyneto	DD	3	125	33x4	...	...	...	...	...	1285	...	...	...	...
COMET	6-31x5 29.4 Delco	Miller	Dyneto	DD	3	125	33x4	...	...	...	...	...	...	...	...	...	...
C-50	6-31x5 19.6 A.Kent	Carter	Dyneto	DD	3	112	32x3 SS	...	...	...	1995	995	...	...	...	...	...
COMMONWEALTH	4-31x5 21.7 Remy	Zenith	A-Lite	C	3	108	33x4 SS	...	...	...	...	...	...	...	...	...	...
CROW-ELKHART	4-31x5 19.6 Conn	Zenith	Dyneto	D	3	114	32x3 SS	...	...	...	...	...	...	...	...	...	...
CE-36	4-31x5 19.6 Conn	Zenith	Dyneto	D	3	114	32x3 SS	...	...	...	...	...	...	...	...	...	...
CUNNINGHAM	8-31x5 45.0 Delco	Stumbg	West	D	3	132	35x5	...	...	...	4250	...	...	...	...	...	...
8-31x5	8-31x5 45.0 Delco	Stumbg	West	D	3	132	35x5	...	...	...	4750	...	...	...	...	...	...
DANIELS	8-31x5 33.8 Weths	Zenith	Weths	D	3	127	34x4 QDR	...	...	...	3250	3250	3250	...	...	...	...
DAVIS	6-31x5 25.3 Delco	Stumbg	Delco	C	3	119	34x4	...	...	...	1485	1485	...	...	1850	...	...
H.I.K	6-31x5 29.4 Delco	Stumbg	Delco	C	3	125	34x4	...	...	...	...	1785	1785	...	...	...	...
J.I.	6-31x5 29.4 Delco	Stumbg	Delco	C	3	125	34x4	...	...	...	...	...	...	...	...	...	...
DISPATCH	4-31x5 22.5 Boech	Radd	U.S.L.	CU	4	120	34x4 QD	...	...	...	1150	...	1250	1400	1400	...	...
DIXIE FLYER	8-31x5 16.9 Conn	Carter	Dyneto	D	3	112	32x3 SS	...	...	...	1995	...	...	...	...	...	...
1585	8-31x5 16.9 Conn	Carter	Dyneto	D	3	112	32x3 SS	...	...	...	...	...	...	...	...	...	...

[illegible]

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leese-Neville, "Titus" Tillotson, "B & Ball" Ball & Ball, "Atz" Atomizer, "Rech" Reichenbach, "DD" Dry Diak, "CU" Control Unit, "Gearless, f." Friction, "Spidf" Spindorf, "JDg" Quick Detachable Reversible, "U" Universal, "E & M" Robbins & Myers. NOTE—37%±5% means that the rear tires are 37±5%, and the front are smaller. Detachable too. 300x. means 300 extra.

Tractor Demonstration for Delaware

WILMINGTON, DEL., March 14—The Kent County Farm Bureau, which is the official link between the government and the farmers of the central county of the state, has arranged for a tractor demonstration, to take place in the vicinity of Dover for three days during the week of April 15, the hope being that it will be witnessed not only by Kent County farmers, but also by those in the other two counties. There will be demonstrations in plowing, fitting and preparing the land, which will take place in the afternoon of each day, the mornings being allowed for examining the machines.

An invitation has been extended to all tractor manufacturers having agencies in this locality to take part in the demonstration. Up to the present time seven have responded and each, it is expected, will have several different types of machine.

500 Ford Tractors for Michigan

LANSING, MICH., March 14—An arrangement similar to that made with the Canadian Government by Henry Ford & Son is about to be consummated by the State of Michigan with the same company whereby 500 tractors will be sold the state and the latter will distribute them to the farmers wanting them. Henry Ford states he is ready and willing to sell a large number of tractors to the state, and promises delivery by April 1. Farmers are flooding the Governor's office with telegrams urging him to put the deal through. The state has already received several orders for the tractors. It is Ford's idea to establish

no agencies at this time nor sell to individual users direct; if the government wishes to supply any state with a quantity of machines he will enter into an agreement with it.

Pennsylvania to Buy Tractors

WASHINGTON, March 14—The State Safety and Defense Commission of Pennsylvania has appropriated \$50,000 to purchase twenty-five farm tractors to be rented to farmers by the State Department of Agriculture at as low rate as possible. Lieutenant-Governor McClain is chairman of a committee to make the purchase. There will be more tractors purchased after further appropriations are made in the near future.

Ten Munitions Districts

WASHINGTON, D. C., March 14—In order to bring about decentralization and closer contact with munitions manufacturers, the Ordnance Department has divided the country into munition districts with headquarters for different zones at Pittsburgh, Cleveland, Rochester, Boston, New Haven, Detroit, Cincinnati, Chicago, New York and Philadelphia. A district chief of production will be located in each of these cities.

Styles at Clinton Show to Interest Women

CLINTON, IOWA, March 14—The third annual show of the Clinton Automobile Dealers' Assn. opened here last week. Every dealer in the city had exhibits,

and the displays included 50 car and 4 truck models. No tractor models were shown, none being available, but dealers are taking orders for them.

A style show is being held in connection with the automobile show to interest the women. Last year many cars were sold to women, and the dealers are featuring style show publicity to get more of them interested. Last year more than \$1,500,000 worth of cars were sold and distributed in Clinton, and the dealers expect a 25 per cent increase in 1918 if cars can be obtained. In several instances men have been sent to the factories to drive the cars to Clinton.

Dual Tires for Motor Transport

WASHINGTON, March, 14—Tire manufacturers were called to Washington last week to attend a conference with the Motor Transport Section of the Quartermaster Corps. It was decided to use the 40 x 6 dual tires on the standardized trucks in preference to the 40 x 10 single tires.

Buys Site for Hawkeye Plant

SIOUX CITY, IOWA, March 15—H. A. Bennett, president of the Hawkeye Truck Co., last week purchased a five-acre tract at Twenty-eighth Street and Floyd River Road as a site for the new factory to be built this spring. Present plans call for a factory 75 x 300, with 22,500 ft. of floor space. The building will have a steel framework and finished on the exterior with stucco. Some time during the coming summer an office building will also be erected on the land just purchased. The new factory will be on Illinois Central trackage.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Great Falls, Mont.....	Montana Automobile Distributors... Mar. 15-20	Hartford, Conn.....	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr. Apr. 6
Vancouver, B. C.....	Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr. Mar. 19-23	York, Pa.....	York Automobile Dealers' Assn. Queen St. Tabernacle. Apr. 1-6
Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luther, Mgr. Mar. 20-22	Green Bay, Wis.....	Brown County Automobile Trade Assn. Apr. 6-8
Holdrege, Neb.....	Second Annual of Southwest Nebraska. Mar. 20-23	Ogdensburg, N. Y.....	Second Annual, State Armory. Apr. 3-6
Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr. Mar. 20-23	Red Bank, N. J.....	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr. Apr. 6-13
Greensboro, N. C.....	First Annual. John Kelley, Mgr. Mar. 20-23	Reading, Pa.....	Reading Automobile Trade Assn. Apr. 8-13
Bridgeport, Conn.....	Sixth Annual Cars and Trucks Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Stelber, Mgr. Mar. 25-30	Deadwood, S. D.....	City Auditorium. Apr. 15-20
Rochester, N. Y.....	Tenth Annual, Rochester Auto Trades Ass'n, Exposition Park. C. A. Simmons, Mgr. Mar. 25-30	Calumet, Mich.....	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum. Apr. 17-20
Fort Fairfield, Me.....	Reed's Garage. R. F. Reed, Mgr. Mar. 27-29	Davis, Cal.....	Tractor Demonstrations, University of California. Apr. 17-19
Atlantic City, N.J.....	Second Annual, Garden Pier. W. W. Garabant, Mgr. Apr. 6		
Chicago, Ill.....	Second Annual Used Car, Chicago Auto. Trade Assn., Coliseum. Apr. 6		

Conventions

Detroit, Mich.....	World's Salesmanship Congress. Third Annual Session. Apr. 24-27
Lima, O.....	Ohio State Automobile Assn. May 3-7
Hot Springs, Va.....	Convention National Association of Automobile Accessory Jobbers. June 5-12

MOTOR WORLD

for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 13

New York, March 27, 1918

Ten cents a copy
Two dollars a year



(C) International Film Service

Private Darland of Petersburg, Ill., has sacrificed his future for the same cause for which you are now asked to buy Liberty Bonds. You were probably sitting comfortably at home when Darland was captured by the Germans at Cambrai. You might have been lunching at your club when he was recaptured by the British. You have been peacefully going about your work while he has been suffering in a Paris hospital. If you had seen what he has seen you would not hesitate to buy Liberty Bonds. He knows how that vast army of young Americans needs your support. He knows that this war will be a hopeless, crushing failure if *you* don't do *your* share. Every dollar you spend for bonds is a protest against the destruction of American ideas, American ideals, and American youths like Darland who are being sent thousands of miles from home into that European Hell.

BUY LIBERTY BONDS!

In co-operation with the Liberty Loan Committee this advertisement is being published by the
HUDSON MOTOR CAR COMPANY, DETROIT



A country-wide increase in the demand for Nash trucks seems to confirm our prediction that dealers would find it extremely profitable to handle the complete line of Nash trucks in conjunction with the widely sought for line of Nash perfected valve-in-head motor cars.

Nash Passenger Cars

5-Pass. Touring Car \$1295
4-Pass. Roadster - 1295
Sedan - - - - - 1985
Nash Model 671 - 1465

(Seven-Passenger Touring Car)

Nash Trucks

One Ton Chassis \$1495
Two Ton Chassis 1875
Nash Quad Chassis 3250

Prices f. o. b. Kenosha

The Nash Motors Company, Kenosha, Wis.

*Manufacturers of Passenger Cars and Trucks,
Including the Famous Nash Quad.*

NASH MOTORS

VALUE CARS AT VOLUME PRICES

Are You the Man?

An addition of several new mills (we now have 38 factories) and the present curtailment in the requirements of leading car manufacturers enable us now to make arrangements with several reputable dealers to take care of the growing demand for Rusco Brake Lining in their respective territories. This demand is the result of Rusco's enviable reputation for long, consistent and efficient service built up through years of use as factory equipment on several leading makes of automobiles.

RUSCO BRAKE LINING

Rusco brake lining is made from specially selected long fibre asbestos. This is interwoven with brass wire on special looms built in our own shops. The result is a solid woven brake lining, which gives a safe, sure, uniform braking power long after ordinary brake linings have lost their efficiency.

Rusco is impregnated with our own compound, which makes it dust, oil, water and wear proof. It costs 12% more to make than other brake linings, but the long length of service it gives and its superior efficiency makes it the most economical brake lining on the market.

We want dealers who are building their business upon the solid foundation of satisfaction to their customers. To such dealers we offer a very attractive proposition and will extend every possible co-operation in the way of dealer helps, advertising, etc.

Are You the Man?

The Russell Mfg. Co.

Main Office and Factory, MIDDLETOWN, CONN.

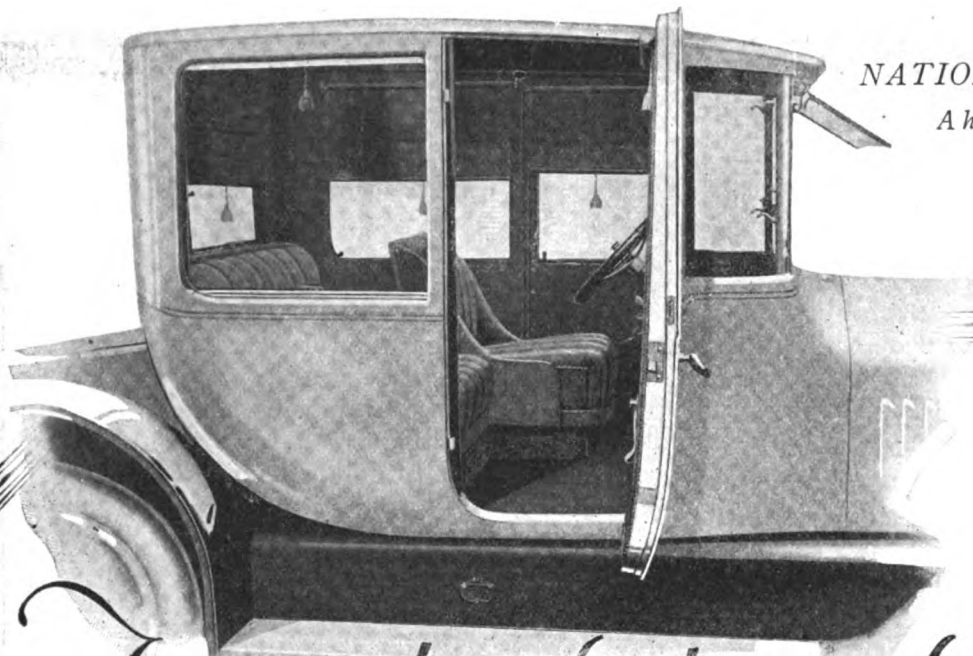
New York Office:
349 Broadway

Detroit Office:
18 Alexandrine Ave., East

Chicago Office:
1438 Michigan Ave.

NATIONAL "HIGHWAY" COUPE

A handsome automobile furnished with
"Bridgeport" Interior



From tack to robe rail

The beauty of a "Bridgeport" Interior is due primarily to exquisite harmony of fabrics, laces, curtains, carpets—rare blending of color and design. From silk-covered tack to graceful roberail, each component part harmonizes with the general scheme of decoration. Subtle beauty and sturdy wear have resulted in an overwhelming demand for—

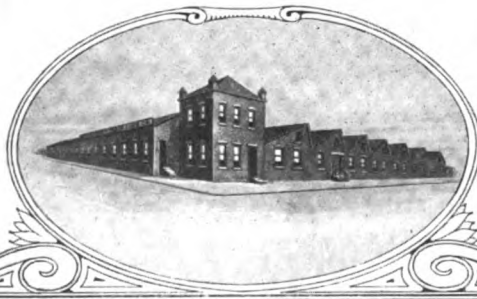
FABRICS BRIDGEPORT

The Keynote of Harmony

[THE BRIDGEPORT COACH LACE CO., BRIDGEPORT, CONNECTICUT

New York Showrooms—1765 Broadway

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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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"NORMA" BALL BEARINGS

(Patented)



The ultimate measure of a car or truck is in the strength of its weakest, not of its strongest, feature. Appearance may deceive, but performance will surely reveal the integrity—or otherwise—of the design, construction and equipment. Let your scrutiny of service qualities extend to every detail of every accessory.

There is a distinguishing mark by which magnetos and lighting generators which deserve your unqualified confidence may be identified. That is the presence of "NORMA" Ball Bearings—the standard bearings adopted by accessory builders to maintain the high quality of their own product.

**Be Sure—See That Your
Electrical Accessories
Are "NORMA" Equipped**

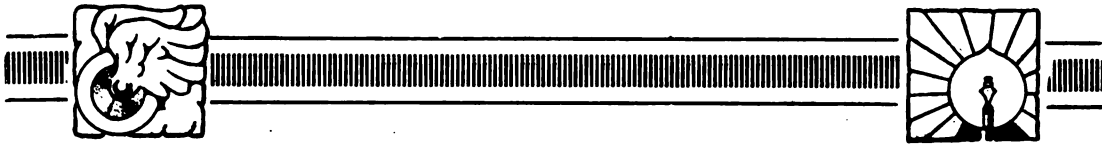


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Ball, Roller, Thrust and Combination Bearings

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GRAY & DAVIS STARTER for FORD cars

Performs its duty in all kinds of weather, without apparent effort, on thousands of Fords everywhere.

Mr. Dealer

Why not sell the Gray & Davis Starter.

Every Ford owner a logical customer—every user is quick to tell his neighbor of its wonderful advantages. This constantly develops new prospects, waiting to be equipped the Gray & Davis way.

Write today for Booklet A-62
and interesting proposition.

Gray & Davis, Inc., Boston, Mass.

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MOTOR WORLD

DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV

New York, U. S. A., Wednesday, March 27, 1918

No. 13

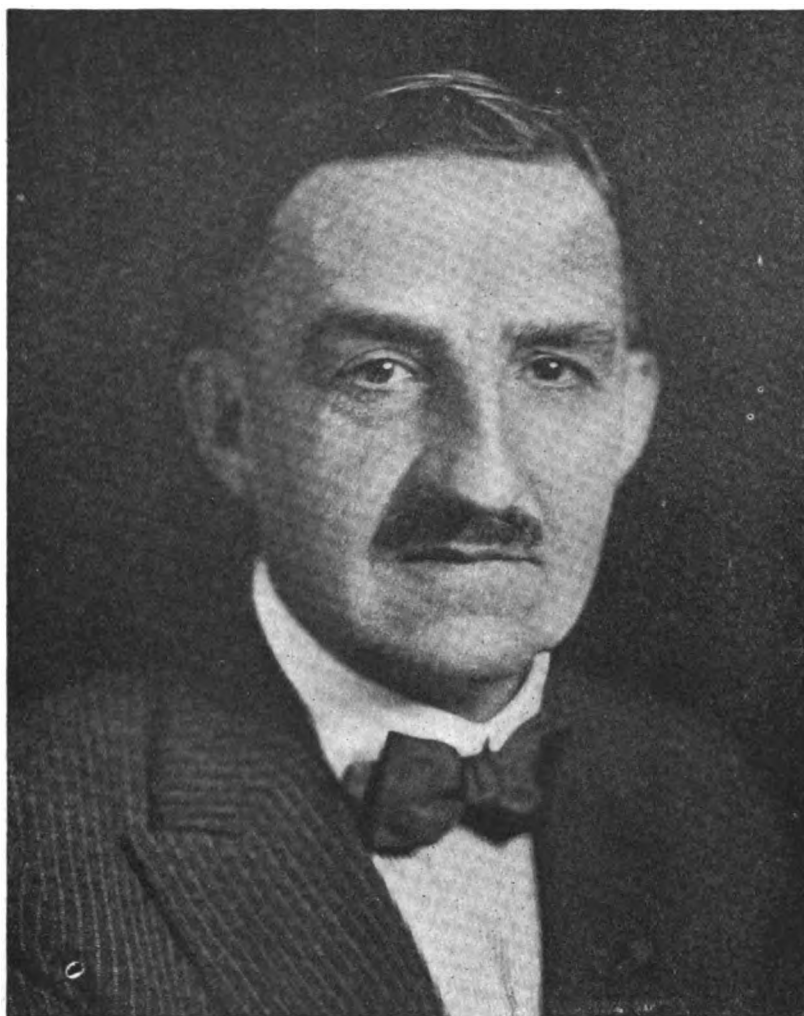
20 THINGS TO THINK ABOUT

- 1—Germany isn't licked—YET.
- 2—After three years of trying Europe HASN'T BEEN ABLE to do the job.
- 3—America has been called on.
- 4—If America can't finish the job—IT WON'T BE DONE.
- 5—America CAN finish the job if she tries.
- 6—She will be able to try IF she gets what she needs.
- 7—The need is for ships, guns, tanks, trucks, airplanes, clothing, food, ammunition and materials—all of which can be secured ONLY if the country has money.
- 8—These can be secured only if the people LEND their money to the government.
- 9—This lending is done through Liberty Loans, the third of which will be ready APRIL 6.
- 10—If the loan fails the materials CAN'T be secured.
- 11—If the materials are not secured the war will be LOST.
- 12—If the war is lost Germany will MAKE YOU PAY the Kaiser the money you didn't lend your country.
- 13—German ships will sail into our harbors.
- 14—German soldiers will walk on OUR streets.
- 15—We shall be insulted, taxed, oppressed, ENSLAVED.
- 16—The things that happened in Belgium will happen in New York, Ohio, Missouri, Colorado, California and Louisiana—to YOU—and YOUR wife—and YOUR children.
- 17—Are YOU going to let these things happen?
- 18—WHO is going to buy the Liberty Bonds if YOU don't?
- 19—Read sentences 11 and 12 AGAIN.
- 20—Read sentences 16, 17 and 18 again before you say YOU CAN'T buy Liberty Bonds.



You Must Buy Liberty Bonds

Vesper Tells Why



FRED. W. A. VESPER, St. Louis

President of the National Automobile Dealers' Association

He Says:

AN AUTOMOBILE dealer should buy Liberty Bonds because he is an automobile dealer—which means a progressive, active, vigorous business man, representing the third largest industry in the world.

As such he is vitally interested in protecting not only his business but his country and his flag. This is one way he can do his bit and combine business sagacity and patriotism, for the Liberty Bond is at once a loan to the Government and an investment the like of which has never existed before.

It is the one big thing that will help to win the war.

When It Will Be Too Late to Buy Liberty Bonds



Hang this on the wall of your salesroom

You Must Buy Liberty Bonds

Webster Tells Why



WILLIAM M. WEBSTER

Commissioner of the National Association of Automobile Accessory Jobbers

He Says:

[Washington]

Take Your Choice

[Berlin]

I CAN conceive of no better way for the automobile manufacturer—the parts maker—the accessory jobber—the distributor—or dealer—to wisely and safely advance their interests than by liberally subscribing to the new LIBERTY LOAN, which simply transforms their cash into the safest, soundest kind of interest-bearing, quickly convertible se-

curities, *just as usable in case of need as their dollars.*

Prompt action and noble deeds at home inspire vim, vigor and courage in the breasts of our boys abroad—that's what we want right now—that wins wars. Better lend to Uncle Sam willingly *than have Kaiser Bill grab it ruthlessly.*

Which Looks Best To You?

Could the Shadow Come True?



*Can you afford not to buy bonds of the Third Liberty Loan
which will be ready April 6?*

Had Your Eyes Tested?



What Your Bond Purchase Will Do

THE following figures give one a definite idea of what his or her loan to the Government by the purchase of Liberty Bonds will accomplish when used by the War Department:

One \$50 bond will buy trench knives for a rifle company, or 23 hand grenades, or 14 rifle grenades, or 37 cases of surgical instruments for enlisted men's belts, or 10 cases of surgical instruments for officers' belts.

A \$100 and a \$50 bond will clothe and equip an Infantry soldier for service overseas, or feed a soldier for a year.

A \$100 bond will clothe a soldier, or feed a soldier for eight months, or purchase 5 rifles or 30 rifle grenades, or 43 hand grenades, or 25 lb. of ether, or 145 hot-water bags, or 2000 surgical needles.

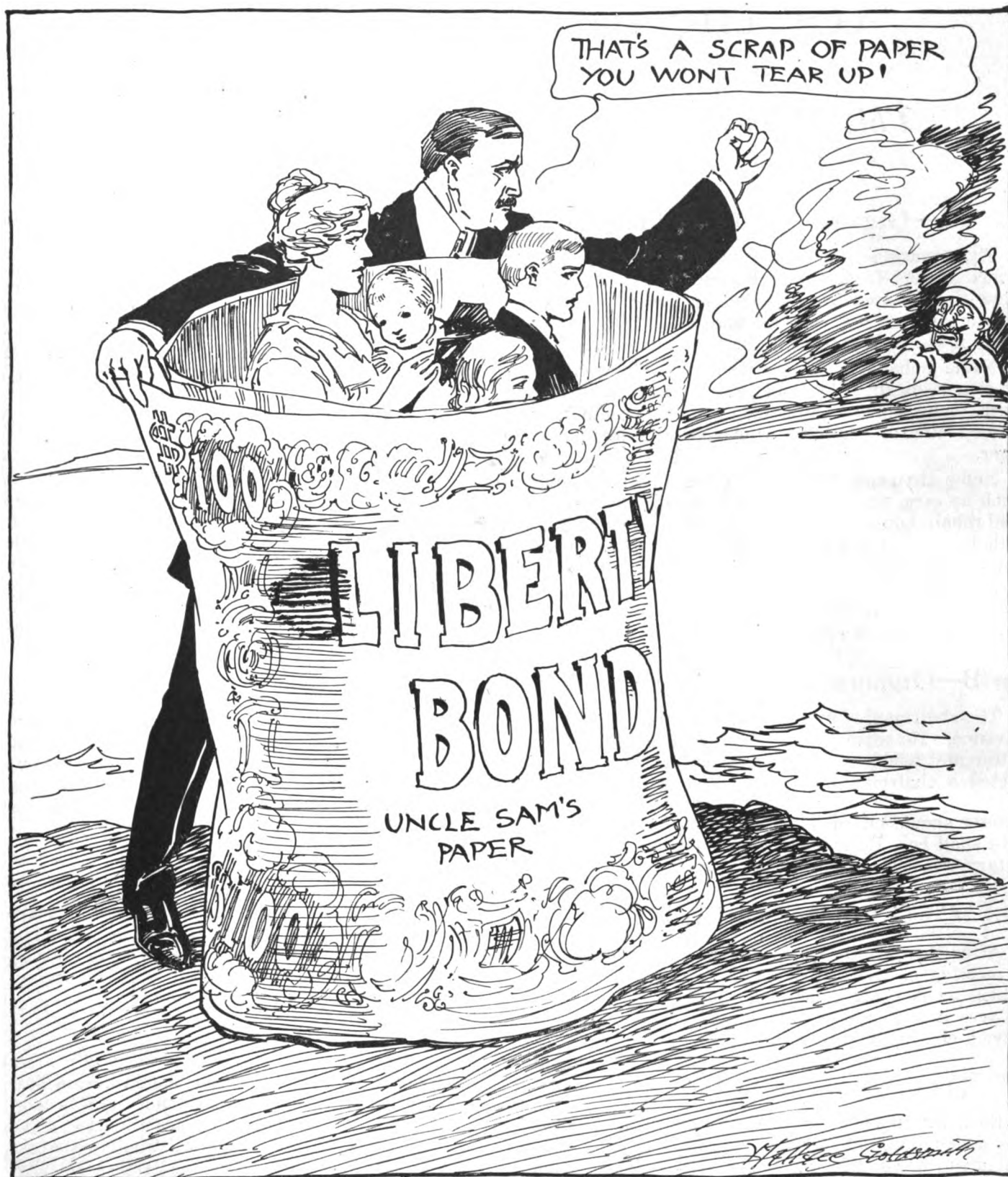
Two \$100 bonds will purchase a horse or mule for Cavalry, Artillery, or other service.

Three \$100 bonds will clothe a soldier and feed him for one year in France, or buy a motorcycle for a machine-gun company.

Four \$100 bonds will buy an X-ray outfit.

One \$500 bond will supply bicycles for the headquarters company of an infantry regiment.

Are YOU Doing This?



Hang this on the wall of your home

Organize the Trade in Your City for the 3d Liberty Loan

This Tells About the Chart on the Opposite Page

A—Organize the Whole Trade

First you must, of course, plan on organizing the whole trade. To do this, call a meeting of the trade, have it addressed by a speaker or two on the loan. These talks should be good and NOT TOO LONG. Then move to organize for the loan campaign.

Name a chairman for the whole trade, a secretary-treasurer, or split the office into secretary and treasurer, name a publicity manager, or leave him to be named later, and select now or later a speakers' manager.

Name chairmen from each division of the trade, such as cars, trucks, tires, oil and gasoline, garages and repairshops, and tires and supplies. Maybe there will be more, maybe less. The trade chairman and the chairmen from these divisions will constitute the Trade Liberty Loan Committee. This committee is the moving spirit of the whole works and should be made up of live leaders.

B—Organize Each Trade Division

The chairman of each division should organize his division. He should call a meeting of his division by letter and telephone. At this meeting should be selected a chairman from each dealers' organization. This may or may not be the proprietor, but the proprietor should be consulted as to who his representative shall be. Each trade section should have a secretary-treasurer and a publicity man.

C—Organize Each Trade Unit

After this meeting each unit chairman should call a meeting of the employees in the organization of which he is a chairman and should divide the employees into department units, each of which should have a chairman, such as office, sales, service, etc.

D—Organize Each Department

Each department chairman should then organize his department. Depending on the size of the department, he should form teams, with team captains. The captains should be allowed to choose sides. The team captains should, if the teams are large enough,

choose lieutenants, who will help in the solicitation work.

The work should then begin. Every employee should be asked to invest as much as possible. There should be a mighty good reason in case a man says he can't buy. Every department, every dealer organization, every unit, and the whole trade should strive to be a 100 per cent organization with every member buying bonds.

NOTE

There should be frequent meetings of the whole trade, sections of the trade and dealer organizations. The speakers' chairman, assisting the big trade chairman, should supply these speakers on call. When and where the meetings shall be held is up to the various chairmen. Perhaps even so small a unit as a service department may decide to hold a meeting of its own.

Organize Just Enough

In case the city is small, perhaps organization down to the departmental and team basis is too much. There is no use having teams if there are only two men in the sales department. The fineness of organization can be stopped at any point, depending on the size of the city and the trade in it.

Use the Trade Association

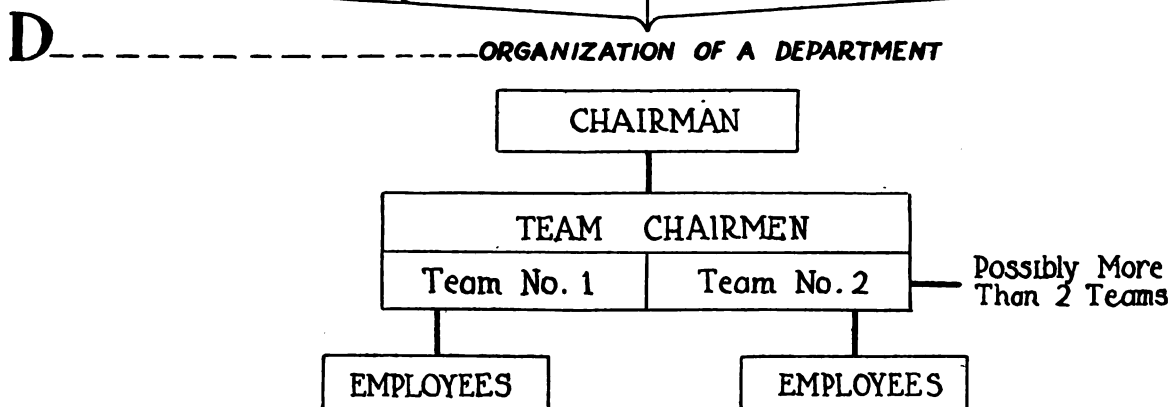
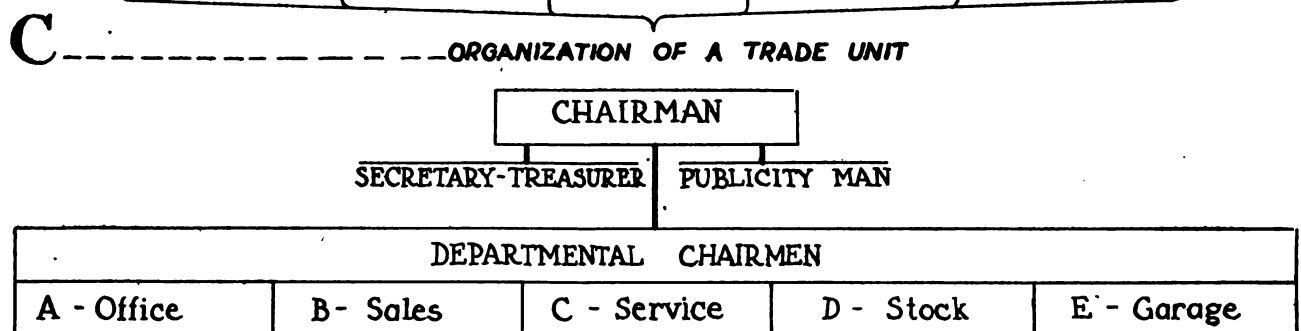
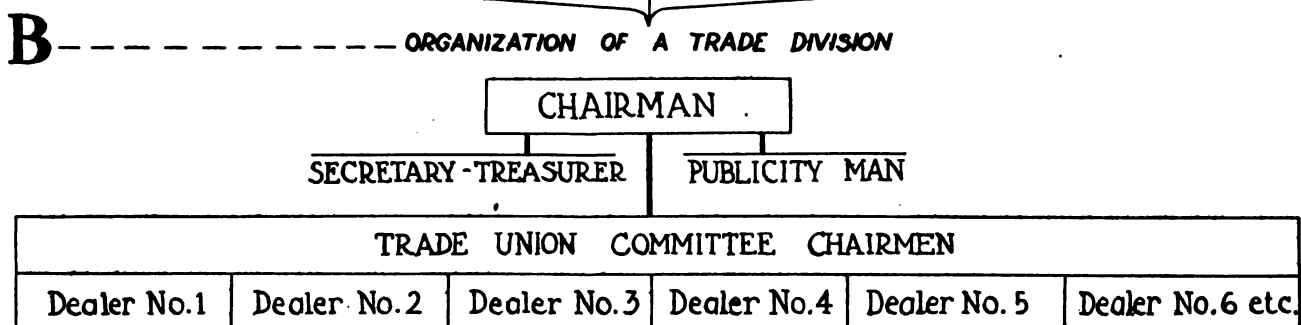
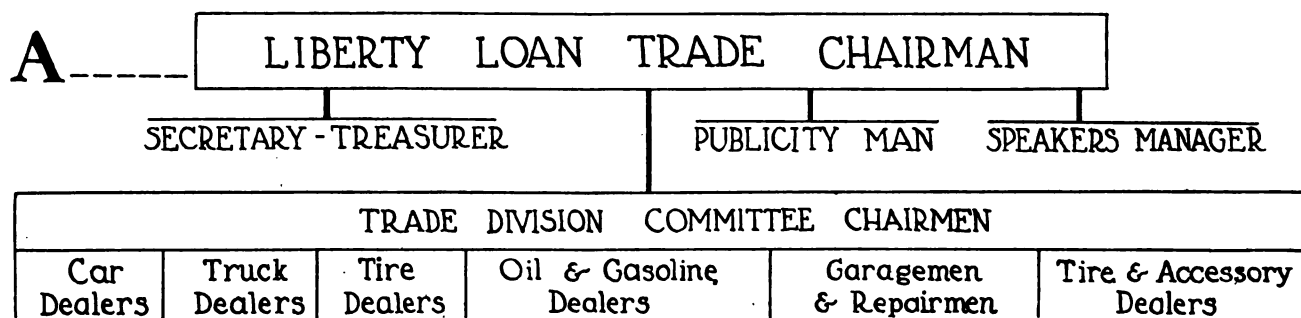
If there is a trade association it perhaps can serve as the skeleton of the work. A few towns have civic organizations that handle the work for all trades. There is no use disrupting a good working organization that has done good work before.

Get Publicity

The publicity man in each case should keep a flow of bulletins going out. Chicago during the last campaign sent a daily thermometer to each dealer. The trade far over-subscribed its quota. The newspapers should be kept informed as to the trade's activity. It helps.

Strive in every case for 100 per cent organizations.

Here's a Plan for Organizing the Trade of Your Town for the 3d Liberty Loan



MAKING Your Dealers Successful MEN

How H. K. Noyes, of Boston, Makes Successful Dealers in New England in Order That He Himself May Be More Successful



H. K. NOYES is what might be called a philanthropist. It is certain that he is a good business man.

He is the Noyes-Buick Co., Boston, and sells 7500 Buicks a year in the states where the forefathers of most of us fought with the Indians and invented Thanksgiving.

He might be called a philanthropist because he has helped a lot of dealers in New England to become successful dealers, and the good-business end of it comes in when it is realized that no distributor can be successful unless he has good dealers.

Every distributor should make good dealers. If he doesn't he isn't efficient in the niche that he has taken unto himself in the industry of which he is a part. A distributor who simply ships goods in one door and out the other and writes nasty letters because dealers don't pay for them is only comparable to a clerk of routine. He is not a creative, constructive builder in the world of business.

Noyes gets a living and enjoyment out of business. He works for both results, those that are measurable in money and those that are commensurable only in the satisfaction of which only he can be the judge.

Noyes didn't say all these things about himself, but he did cite a few instances of his policy in regard to his organization.

"Years ago," said he, "and not so many years at that, the motor car business was on anything but a business-like foundation. It is that way to-day in some cases.

"The representatives of factories and distributors used to go to dealers and say: 'How many cars do you want this year?'

"The dealer would say: 'Oh, a hundred.'

"The roadman would say 'All right,' and then he would come back and report that he had sold 100 cars, when as

a matter of fact he hadn't sold anything at all.

"When I used to be a wholesale grocer and went to the Board of Trade and said I would take a carload of flour I had to take it—and pay for it. There was no mistake about it—I had bought it and I had to take it and pay for it.

"But in motor cars it was different. The dealer just made an estimate of what he thought he could sell and if he signed a contract didn't consider it as of much consequence. He didn't give serious consideration to the thing that was the vital part of his whole business—his contract.

"One of the first lessons I have had to teach dealers has been to regard their contracts seriously. I would say to a dealer: 'How many cars do you want?'

"He would say: 'Oh, about a hundred.'

"Isn't that a lot?'

"No, I can sell 'em.'

"Then I would tell him: 'All right. That's two cars a week for the year.'

"What? Every week?'

"Certainly, every week! When did you think you'd get them?'

"And then he would begin to say that he couldn't take two cars EVERY week. Then I'd ask him when he did want them, and about that time he would begin to think about it seriously. Until then he hadn't regarded his contract as of much consequence.

"The next step was to put the cars on a schedule and have an understanding that he was to live up to it and pay for the cars when they arrived.

"The dealers would complain that they couldn't pay for the cars when they arrived. I would tell them to borrow money from the bankers. They said they couldn't, so I would go to the banker with the dealer, explain the situation and secure the banker's support. If the banker flatly refused I have even financed deals myself.

"The dealer was taught the principles of right business, was shown up as a

business man in the eyes of the banker, and then—if anything happened and the dealer couldn't move the cars we have always been able to shift them around somewhere else and get him out of his trouble. I have never yet seen a dealer stuck.

"Furthermore, we insist that the dealers make money. If they don't make money I send an accountant out to find out what's the matter. If the dealer hasn't books we open a set of books for him. We find out where he has been losing money and show him how to stop the leaks. Then we insist that he make money, because if he can't make money he isn't any good to me and I'm no good to him. Our relationship is unprofitable.

"I remember one dealer in one city who was running a garage on a side street. He had a poor location and a poor business. I got him to move around to the main street, and then I went down to see him. He had a fair salesroom, but I told him he had better rent the other half of the store he had taken and have a real salesroom.

"He did so. Then I told him to go to the bank and borrow some money. I had already secured \$15,000 capital for him. The bank loaned him \$10,000 on the cars he had coming.

"For this loan he had given a bill of sale. I told him the bank hadn't loaned him anything; they had simply taken his cars in hock the same as a pawnbroker would. I told him he was entitled to credit on his moral risk and his capital stock. He went back and got a credit of \$25,000.

"He opened books, went after business and last year made \$28,000. He now has a credit at that bank of \$50,000.

"One of the first principles necessary to be taught is the meeting of obligations promptly. When a man reaches that stage he is on the right track.

"One of the great leaks has been wrong trading. When that is checked the dealer has saved himself a lot of money."

(Continued on page 89)

Driveaways to New York Start in Earnest

Practically All Cars Come Over the Road—Cost Varies
from \$110 to \$114 Per Car

NEW YORK, March 21—Driveaways from the factories to New York dealers have started in earnest. In fact, few cars are being received any other way at present and it is anticipated that the number of cars coming over the roads will steadily increase for the next few weeks as the highways get into better condition and the snows and mud disappear.

As some indication of the number of cars that are coming in, just four examples may be cited. The Oldsmobile Co. received this week a convoy of 50 cars, the same number having come in last week; the Buick branch expects 34 cars this week; the Colt-Stratton Co., Dodge Brothers dealer, has a squad of 20 drivers on the road now; Maxwell expects a convoy including four trucks, each carrying a sedan, four roadsters and three touring cars. These, together with two trucks, which will be dropped at Utica, and a roadster which leaves the convoy at Rochester, left Buffalo yesterday and will reach New York early next week.

The cost of driving cars from Michigan factories to New York varies slightly, but in general may be put at between \$110 and \$114 per car average. Where no trouble is experienced, such as smash-ups, etc., the cost may be considerably lower if the roads are good and the time

cut to the minimum. Generally it takes an average of about 7 days from either Flint or Lansing, though in some cases 10 days are required. From Buffalo, dealers generally allow about 5 days.

The Oldsmobile company kept careful track of all expenses connected with bringing down the last convoy of 50 cars and from the table given herewith it may be seen that quite a little damage was done to paint and varnish en route:

OLDSMOBILE DRIVEAWAY COST OF 50 CARS. LANSING TO NEW YORK	
Gasoline and oil	\$990.81
Pay, 50 men at \$3.60 a day, 9 days and 1 day going	1,800.00
Expenses, 50 men at \$2.50 a day	1,250.00
Railroad fare, 50 men at \$15.33	766.50
Ferry and tolls	89.40
Licenses	250.00
Expense, man to York, Pa., with li- censes	20.00
12 damaged fenders	150.00
Touching up and varnishing 13 cars at \$20	260.00
Wash and polish 50 cars	50.00
9 splash pans	18.00
Dent in back, 2 guards and refinish- ing one car	65.00
Total	\$5,709.71
Average per car	114.15

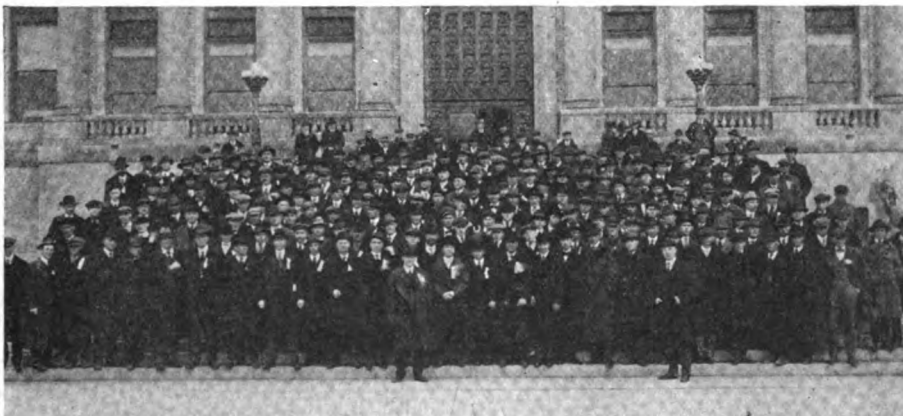
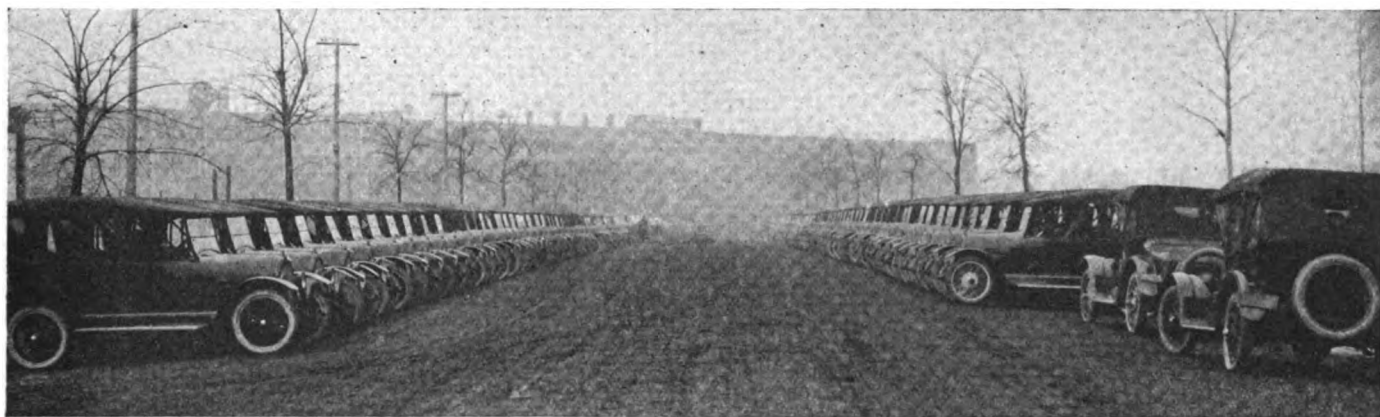
The Buick Motor Co. finds it very bad practice to start a convoy of 30 or 40 cars off all at once. This means congestion on the roads and when small towns are reached for noon or night stops insuffi-

caring for the cars. Furthermore, the men are likely to skylark at night and this means a late start the next morning when early starts are imperative if schedules are to be maintained.

The best plan has been found to send the cars away in groups of five, each group with a captain who is responsible for all the drivers and cars in the group. Each group is sent away perhaps an hour after the preceding one. This eliminates congestion on the roads and at the ferries, gives the small town restaurants a better chance to feed all the men and separates the drivers into small groups that are more likely to go to bed at the proper hour.

The present method is to pick up drivers in New York and pay their railroad fare to Flint or to Buffalo. Little trouble has been experienced in getting good men. One driver, however, who was accustomed to another make of car, drove a Buick about 300 miles in second gear at 30 m.p.h. and burned out the bearings. But this is the only trouble that has been encountered along these lines.

Later, when the roads get better and schedules can be adhered to more rigidly, it is planned to relay the drivers, one squad staying with the cars one day and returning that night or next morning.



THESE are undoubtedly "driveaway" days. In the midst of them the Willys-Overland Co. holds the record for what is considered the largest individual cross country shipment of cars. This consisted of 275 cars of all models valued at nearly a quarter of a million dollars, all driven away by one distributor in one day. When lined up in front of the Administration Building, side by side, they stretched a distance of two city blocks on both sides of the parkway in front of the plant. The distributor is the Gibson Co., Indianapolis. The "Gibson Raiders" are shown at the left.

THE LOCKED DOOR

THE THIRD IN A SERIES

It will open for all of us if we
only— But read the story

By Ray W. Sherman

IT was two weeks since Miller, the Sennett dealer in Merryilton, had talked with Reilly, the distributor of the Sennett in Callawasa, about some plans and a little bit of business development for Miller's fine young business.

The territory in and around Merryilton possessed all sorts of possibilities for dealer business, but Miller had been complaining for a long time that he wasn't making any money. Reilly had impressed upon Miller—or had tried to—the necessity for having new ideas and doing different things in 1918 and had laid especial emphasis upon the need of plans of a definite sort.

"Well, Miller," said Reilly, "how are those famous young business plans you and I talked about? Did you get them all figured out?"

"Yes," said Miller rather proudly, "I got a lot of plans figured out and I think maybe I can make some business this year. I brought them down for you to look at and I wish you'd take a look at them."

"They look pretty good," said Reilly, as he scanned the campaign that Miller had drawn up for the sale of cars, for pushing the sale of a new truck that the distributor had taken on, for getting rid of some of the trailers they were both now handling and for developing the various other lines of Miller's activities, including accessories and the operation of his repairs.

They Look Pretty Good

"The plans look pretty good," said Reilly. "Are they working well?"

"I hardly know yet," said Miller, "because I haven't had a chance to do much of anything with them. You told me that one of the things I ought to do was to get the windows fixed at my place and I did get started at that. I went around and looked them over and found how many were missing, but some of them were up kind of high and I haven't had a chance yet to get up and measure them and see just what the size is—so I haven't ordered the glass."

"What have you done with the rest of these plans?" asked Reilly.

"I haven't really got started at them yet," said Miller. "You told me to put in an accessory display

case in the driveway of the garage and I have the place all picked out, but I haven't had time yet to decide just how big it should be, and so, of course, I can't order the material until I find out the dimensions."

"What about this truck prospect list?" inquired Reilly, turning to another section of the plans.

"I am going to get after that just as soon as I get back," said Miller. "I have been pretty busy and haven't had time to do anything much with it."

"And what about this prospect list for cars?" again asked Reilly.

"I haven't done much of anything with that either," pleaded Miller. "You see I've been pretty busy down there."

You Must Have Been Busy

"You must have been busy—VERY busy," said Reilly with sarcasm, "according to the amount of work you've done on these plans. The plans seem to be pretty good, but what good are they unless we are going to do something with them? I'd like to know what it is that kept you so busy."

"Well," said Miller, "you see—I—we've been pretty busy in the shop with our spring rush and I've been pretty busy there—"

"In other words," snapped Reilly, "you've been out in the shop working in a pair of overalls. Is that the idea?"

"I have done some work in the shop," admitted Miller. "You see I haven't been able to get men and it really has been necessary for me to help out. Otherwise we couldn't get our work through in the time we promised it."

"How much do you pay your men in the shop?"

"Most of them are getting three dollars a day."

"In other words," said Reilly, "you were throwing away the chances of making profits on your summer business for the privilege of earning three dollars a day. Is that right?"

"Well—" Miller hesitated. "I wouldn't say that—"

"Well then I'll say it for you," said Reilly. "You never can make any money monkeying around in a shop with a pair of overalls, unless you hire somebody to run your business, and if you hire somebody to run your business you've got to pay him more money than the salary of the shop man. If you want to make good money why don't you appoint yourself manager and give yourself a manager's salary and from some source or other dig up somebody to do this work in the shop."

Wanted—Business Manager

"If I couldn't run my shop without working in it myself I would shut down the shop. The chances are also that with the system that you had in your shop the last time I was down there you aren't making a great deal of money out of that part of your business. You sell some cars and make some money on those, and the profits you make on these go to help save the losses that your shop creates. What your business has got to have is a business manager and as near as I can figure out you've got to be it."

"If you don't do it, who is going to do it?"

"Darned if I know," said Miller, with resignation.

"You have now come to the one test which determines whether you are eligible to be a successful business man," said Reilly with seriousness. "You have gotten some new ideas into your head to a certain extent, you have laid out some plans for the conduct of your business in 1918 and now comes the question whether you are able to put them into action."

"IF YOU CAN'T PRODUCE ACTION YOU ARE FINISHED."

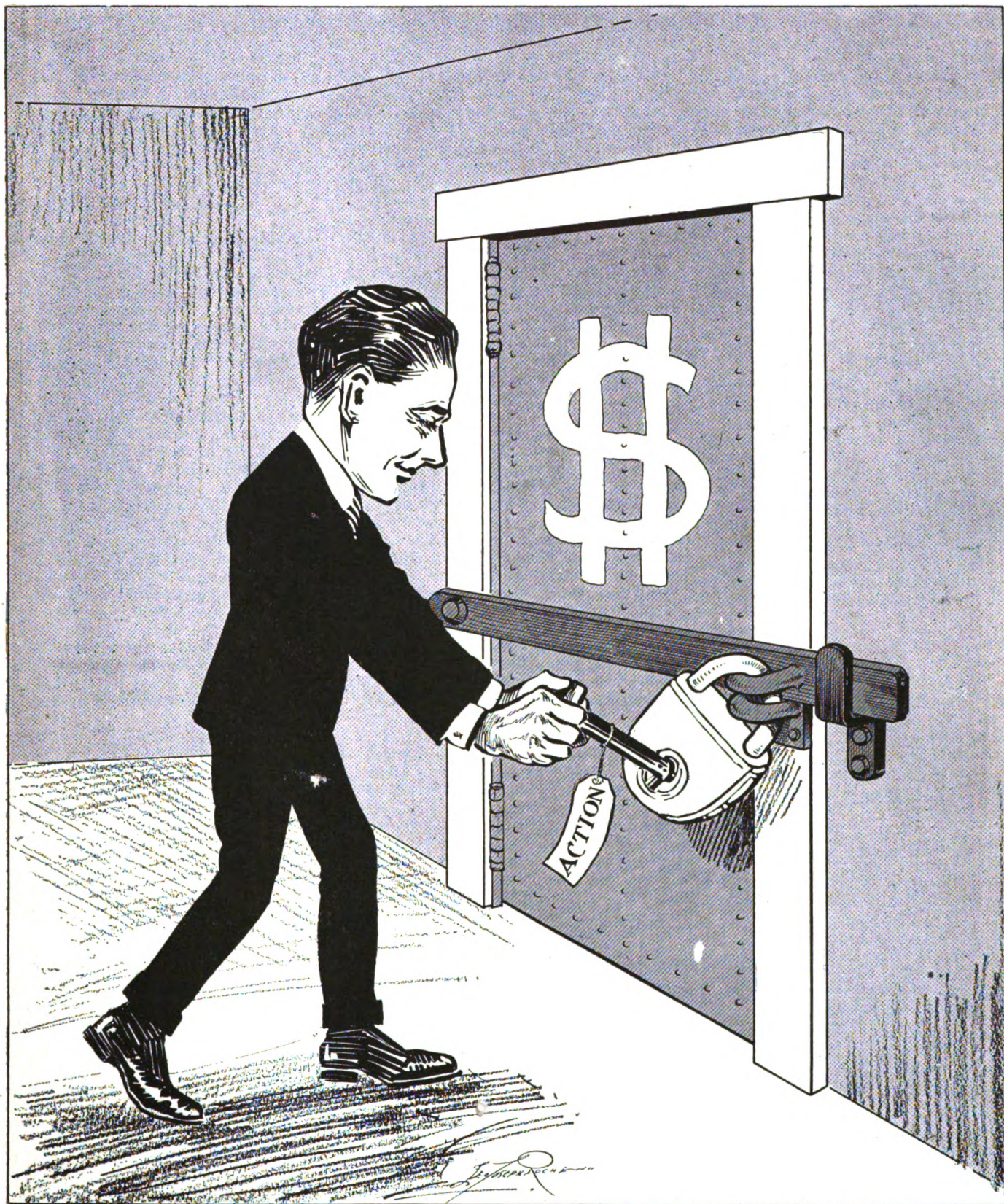
"Anybody can sit around and dream dreams and plan plans and talk over things that ought to be done and discover all sorts of things that might make money for him if he did them, but the trouble

(Continued on page 36)

OTHERS in this SERIES

- 1—The Man Who Was a Slacker
- 2—The Horse Without a Rider
- 4—The Street Without a Name
- 5—Ghosts That Are Unemployed
- 6—The Invisible Ink

The Key to the Gold



Action is the key that will open the door of profits. None other will fit the lock

New Borg & Beck Clutch Has No Brake

Addition of Thrust Bearing at Inner End of Clutch Sleeve Does Away with Friction Between Parts and Eliminates Need of Clutch Brake

IN the new Borg & Beck clutch the clutch brake has been eliminated, thus giving a design which has made very substantial progress over the type used previously. The principal method that has enabled the elimination of the brake is by the addition of a thrust bearing at the inner end of the clutch sleeve, so that there is no friction between the sleeve and the transmission shaft when the clutch is released. Such is the case when there is not a bearing at the inner end of the sleeve, as the sleeve rotates around the shaft continually, being driven by the spring pressure.

Mounting of Clutch

This clutch is mounted in the customary manner in a casing which contains both the flywheel and clutch member, or it can be fitted as a self-contained design in which the clutch itself is in a separate inclosed casing which is provided with a mounting flange, through which it is bolted against the flywheel web.

Referring to the sectional view, the action of the clutch is clear if it is kept in mind that among the rotatable parts, only the driven group, comprising the disk A and the shaft B, can stand still

when the flywheel is running. All the other rotatable parts are anchored to the flywheel, and these must revolve and drive with the latter.

The clutch brake was formerly mounted at the inner end of the clutch shaft and has been replaced by the thrust bearing shown at C. When the clutch is disengaged there is no friction between the shaft B and the throw-out sleeve D, the thrust bearing taking the rotating drag of the clutch shaft, thereby eliminating the necessity for a brake to check the spinning action.

The friction and power action of the Borg & Beck clutch is readily understood as, when the clutch is thrown in, all the rotating parts are friction-locked into a single combination and revolve as one with the flywheel. The power of the released thrust spring E, acting through the throw-out collar F, and the bellcrank pivot G, drives the thrust shoes outwardly with a lever-wedge-toggle combination of powers against the overhanging, inward-beveled face of the thrust ring H. The thrust shoes in making the friction thrust cannot recede as they climb the face of the thrust ring H, since the parts on which they are mounted are backed against the cover wall or rigid end of the clutch casing.

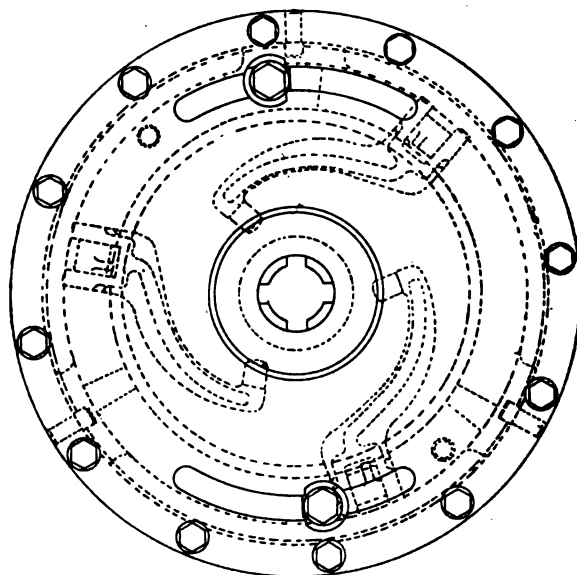
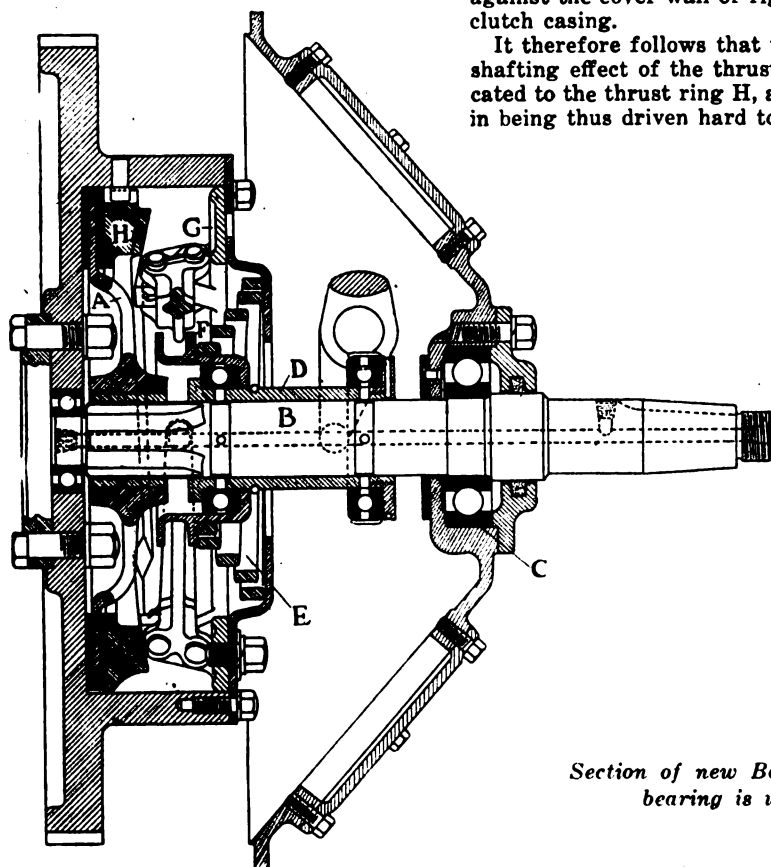
It therefore follows that the full, part-shafting effect of the thrust is communicated to the thrust ring H, and the latter, in being thus driven hard toward the fly-

wheel, sets up between itself and the inner casing wall a friction grip sufficiently powerful to stop the slippage of the asbestos rings upon the polished faces of the disk, thus giving the drive to the car.

When Pedal Is Depressed

When the pedal is depressed for releasing the clutch, the retracting parts telescope the coil of the spring E, until it occupies nearly a single plane. The withdrawing parts also release the clutch shoes a sufficient distance from the face of the thrust ring H to permit the latter, together with its companion friction ring, to back away from the disk, thus breaking the friction grip and permitting it to come to a stop, while the flywheel and the parts of the clutch anchored to it are left free to revolve idly.

The release disk A is so light that its spinning does not continue except for a very short time and does not offer any clashing action on the gears. The full thrust of the spring transmitted through the powerful lever-toggle action to the friction-grip parts is always sufficient to lock the driving flywheel parts, and the driven disk, into a fixed, non-slipping relation, for a full driving action; but it is still always within the control of the driver, through the foot-lever, to let the clutch into engagement by degrees; and thus, by a gradual increase of the fric-



Section of new Borg & Beck clutch in which a ball thrust bearing is used and the clutch brake eliminated

tion-grip, gradually overcoming the starting slippage, it starts the car so gradually as to eliminate everything in the nature of a starting jerk, and this, at the same time that, by reason of the slippage grip, the clutch can be thrown in fast enough to bring the car from stationary to city speed anywhere within from 25 to 35 ft.

The starting slippage necessary to obtain a gradual friction-grip, calls for an incombustible, non-wearing friction-material; and this is provided in the asbestos-friction facings developed in recent years. As to working wear, the asbestos rings of the brand furnished in these

clutches have been commercially standard for years, and can be run year after year before requiring to be renewed.

Taking-up adjustments are provided by means of bolts acting through adjustment slots in the cover. When the bolts are loosened and shifted in their cover slots, they control and shift with them an adjustment ring which brings all the shoes to new seats against the non-shifting thrust ring and these seats, being further up the inclines of the tapered ring, the ring is necessarily thrust so much further toward the other friction parts, thus compensating for wear.

The adjustment for throw-out can be

controlled by taking up the friction grip adjustment, the latter being identical with the take-up adjustment just described, as these two are taken care of by the same mechanical means to make the adjustments on the clutch.

The clutch is held entirely out of means of the pedal, and the parts are then free to be shifted in either direction. To take up for wear, the adjustment bolts are loosened and tapped in a clock-wise direction, $\frac{1}{4}$ or $\frac{1}{2}$ in., or any distance required, and then again tightened. These clutches are made up to fit the standard bell housings or individual mountings, as desired.



N. E. NYSTROM
Proprietor

When Advertising Paid

Nystrom, of Bristol, Conn., Hit In with a Hot Campaign at the Right Time and Cleaned Up

A GARAGE man as well as a business man in retail merchandising can spend his entire profits, and more, too, in advertising with hardly any effort at all, providing he has the least inclination to believe in the drawing power of publicity stunts.

But the goal that is desired is so to map out the advertising for a season or a year that all will combine to give the maximum of results with the wise expenditure of the minimum of needed cash.

Emergency Upsets Campaign

It is a hard proposition to map out a complete year's campaign and stick to it, as quite often a special event will come to a head suddenly that demands instant action.

In this story one of the members of Nystrom Garage, Inc., of Bristol, Conn., tells of taking advantage of a three-day notice of a special event. It was a case of where the year's appropriation for advertising had to be enlarged, for a great opportunity presented itself. The advertising man got busy—the salesman co-operated—and the result was a big "round-up" of new business.

The opportunity showed itself in the form of an announcement by one of the leading refining companies of an advance of 15 cents per gallon on lubricating oil Aug. 1. This announcement came but a very few days prior to Aug. 1.

But the form letters were prepared quickly and sent out to the list of motor

car owners. These letters carried portions of the statement by President Bedford, of the Standard Oil Co., who is also chairman of the petroleum committee of the Council of National Defense. The extracts from his statement, stating the need of conserving the oil and gasoline supply, and the possible shortages to come in the coming months, came as good material for the advertising manager. Aside from the general form letter a further enlargement of the oil situation was given in a small article, or rather, two articles, printed on common newspaper-print paper and circulated with the form letter.

Two days following the mailing of the letter and circular, a second mailing was made of a postal card. This was a timely appeal emphasizing the first articles sent out. The second letter also carried the convincing argument that the oil offered at a special price for a few days was no "phony" oil, but the same as "we ourselves were using and had used for several months past."

Future Oil Shortage Emphasized

Customers were given to understand the exact truth that the dealer had favorable contracts and offered them an opportunity to share in them. A third postal card emphasized the coming shortage in gasoline and motor oils.

While the price went up wholesale to Aug. 1, the offer was held open by public announcement until Aug. 11, as the advertising matter could not be gotten ready, due to the short notice the refining company's agents gave.

The long and short of that spirited campaign of two weeks is a short but terse statement of fact—that the dealer sold more oil in two weeks than he had disposed of in nine months previous. And it should be remembered that the oil business was constantly growing.

Furthermore, the dealer has brought into contact with the garage many new customers. Another point worth mentioning is that the short oil campaign has demonstrated once again to the dealer the value of truthful, consistent and snappy advertising to a selected list. It has made friends realize that the dealer is on the job, and that when he can "let them in" on a good thing he will certainly do so and not try to gobble all the profit for himself.

Bristol, Conn., motorists have already learned to look for the dealer's advertising sheets and announcements of new automobile laws, possible advances in prices, the many little things connected with the automobile industry.

These helps that are extended to motorists are to be doubled and further increased when the dealer moves into a new three-story, fireproof garage on the main thoroughfare, at the junction of practically four streets.

Believes It Pays to Advertise

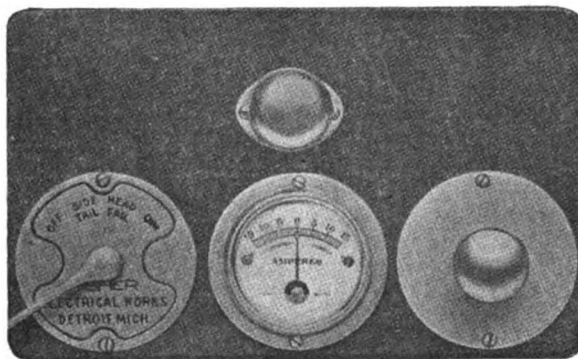
"In referring once again to the oil campaign," said Nystrom, "we feel that we should mention that the success of that campaign was quite pleasing when we stop, ourselves, to realize that we are on a side street, in quarters far too small, and that we are laboring under adverse conditions. But we are doing the best we can, and believe as do the advertisers of Motor World, that it pays to advertise."



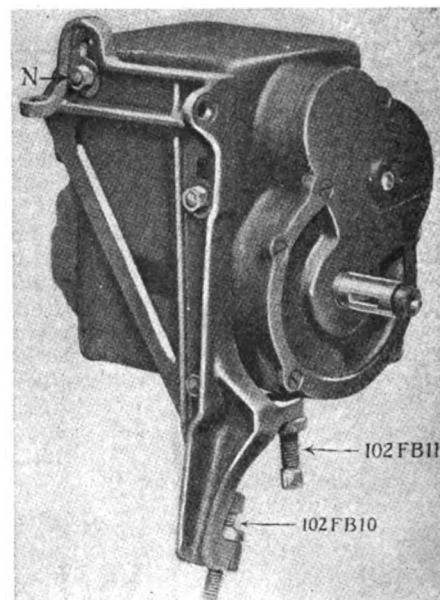
EARL J. ARNOLD
of Nystrom's

Fisher Starter for Fords

Two-Unit Double-Deck Construction— How It Is Applied



Above is shown the instrument board which is part of the equipment. At the right (Fig. 3) is the complete starting-lighting unit



THE Fisher Electric Works, Detroit, is putting on the market an electric two-unit starting and lighting system for Ford cars. The two units are combined in a single case, giving a double-deck construction, and both are operated from the same shaft by a chain drive from a sprocket mounted on the end of the Ford crankshaft.

The starter generator case is mounted on a bracket on the left side of the engine, and the installation requires no tearing down or alterations of the car. Both the crank and the fan are left in their original positions. The time required for a good mechanic to install the Ford starter will vary from three to four hours.

The weight of the equipment is 56 lb. The generator, which is mounted in the lower section of the case, is driven direct by the chain at a driving ratio of 11/5 to 1. This generator commences to change the battery at 8 m.p.h. Regulation of the generator is inherent through the winding.

The starting motor is series-wound, mounted in the upper section of the case, and pressure on the starting switch connects the motor to the generator through a set of gears running in oil. Normally, the motor and generator gears are not in mesh, so that the engine drives the generator only. The cranking ratio of the starting motor is 20 to 1.

The battery is a Willard rated at 12 volts and 35 amp. hr. On the instrument board there is a lighting switch, starting switch, ammeter and dash lamp, all nickel-plated. The instrument board is secured to the dash rim immediately below the windshield to the left of the steering column. A nickel priming but-

ton for the dash is also included. The equipment includes the following list:

Chain	Connecting Cables
Flexduct	Insulating Bushings
Two Sprockets	Dash Lamp
Starting Switch	Instrument Board
Lighting Switch	Pulley for Fan Belt
Zero Center Line	Lighting and Start-
Ammeter	ing Unit
Adjustable Supporting	12-Volt 35-Amp.
Bracket	Hour Battery
	and Box

The operations for installation are as follows:

1—Remove the following: Hood, radiator with upper hose and lower water manifold loosened at side of cylinder, fan, starting crank and pulley on end of crankshaft for driving the fan.

2—Place sprocket No. 102FB5A, Fig. 1, on the end of the crankshaft driving pin *H* through the cross hole in the end of crankshaft, burring the hole slightly so it cannot leave its position. This secures the sprocket to the crankshaft of the engine. Pin *F* is placed in sprocket before shipment.

Then slip pulley marked No. 102FB7A over the end of the sprocket up to the shoulder. Secure the pulley by several center punch marks between the end of the sprocket and the internal diameter of the pulley at *D*.

If it is desired to retain the starting crank in place, cut 3/16 in. off the crank ratchet *C*, Fig. 1, at the shoulder *B*, the original hole in crank ratchet *C*, and starting crank is not disturbed.

If there are burrs on the crank ratchet, or it is too large to enter the chain sprocket, the tips must be filed or turned down in a lathe.

3—Remove the right-hand bolt of the top water connection marked No. 102FB16 and the second bolt on top of the cylinder marked No. 102FB12. If there are burrs under either of these bolts they must be removed.

Remove from the starting unit bracket No. 102FB3 and place the bracket in position shown in Fig. 2. Between the bracket No. 102FB3 and the water connection is placed a thick steel space

washer. The bracket must be bolted securely in place against the water connection by bolt No. 102FB16. It must be secured at the rear end to the top of cylinder by bolt No. 102FB12. The careful placing of the bracket and clamping of these bolts are essential to the successful operation of the installation.

After the bolts above referred to are securely in place turn set screw No. 102FB10 until it rests securely and firmly on the engine casting, and when firmly bedded lock same securely by tightening lock nut. The purpose of this set screw is to take the strains between the shaft of the generator and the crankshaft of the engine and the end of the screw must rest on the casting, otherwise the chain may be injured.

4—Place starting unit No. 102SIA on the bracket and clamp same in its lowest position with nuts on studs. A long shank T-wrench is best to use for this work.

5—You are now ready to place the chain in position. Each chain is equipped with a bolt and cotter pin. Roll the chain under sprocket No. 102FB5B and on sprocket No. 102FB13 on the starting unit. Bring the links together and slip the bolt through towards the radiator and put the washer and cotter pin in place.

Tighten the chain by loosening nuts *N* (Fig. 3), holding the starter to the bracket and nut No. 102FB18, then screw set screw No. 102FB11 up until the chain feels taut when pressed with the fingers. Tighten nuts *N* and lock nut No. 102FB18.

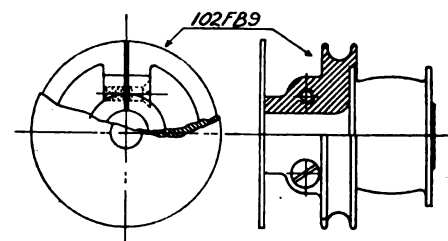


Fig. 4—The fan pulley after being placed in proper position

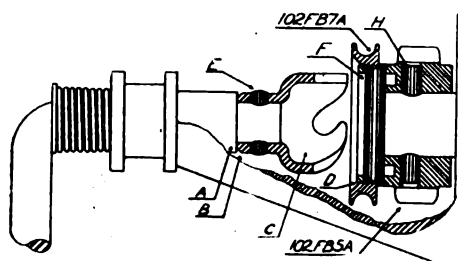


Fig. 1—This is the method of placing the sprocket connection at the end of the crankshaft

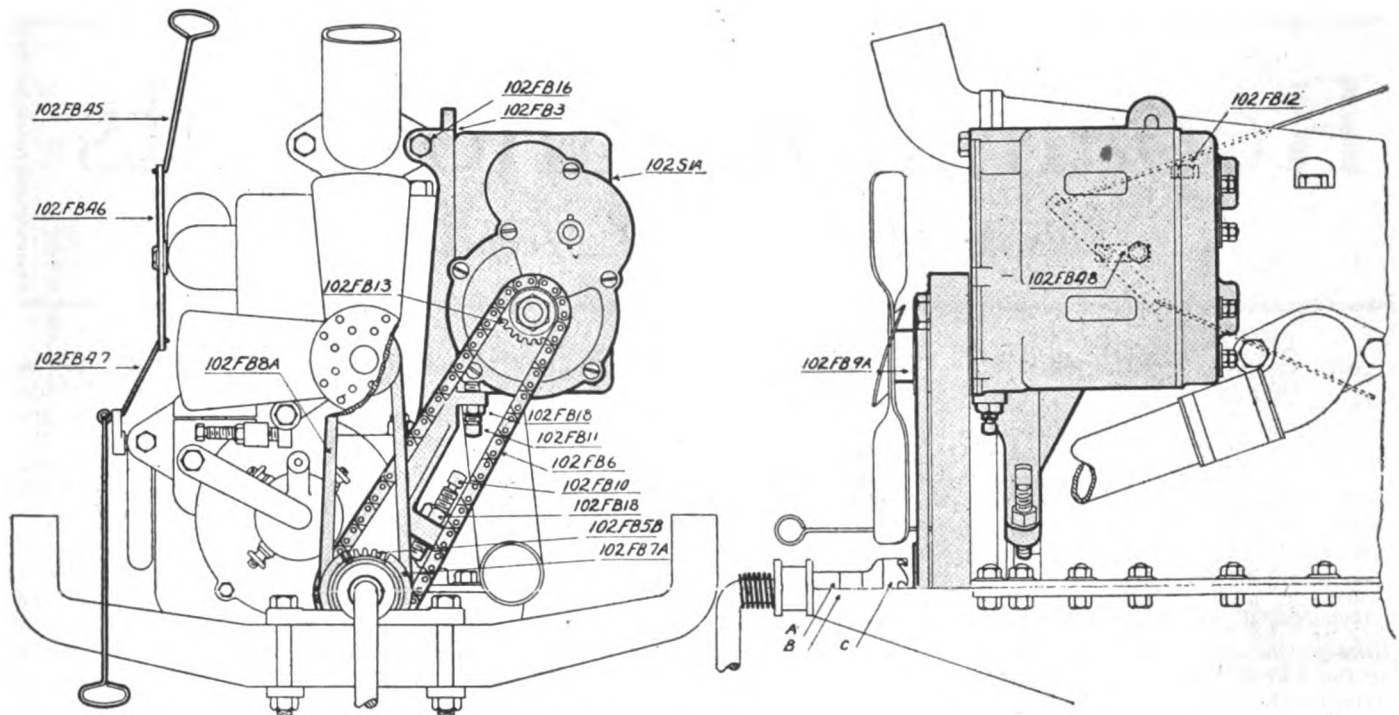


Fig. 2—These two drawings show the method of placing the complete unit and attaching it to the Ford engine. The various figures are referred to in the text

Start the engine a few times with the starter, then tighten the chain again. When the car has been driven two days the chain should again be tightened.

The life and service are greatly increased by keeping the proper tension on the chain, especially while it is stretching during the first few days' run.

6—Separate the split pulley No. 102FB9A, Fig. 4, and clamp on the shaft of the fan between the brass pulley and the fan blades by the two screws. The diameter of the bore of this pulley is slightly under the neck of the fan, so it may be filed with a round file to fit the neck of the fan pulley. When this pulley is in position, hook the round belt, No. 102FB8A, furnished with the equipment over the pulley on the crankshaft and the pulley on the fan.

7—Remove plug from top of lighting and starting unit and squirt one-half pint of BB transmission grease with grease gun into the gear case of the lighting and starting unit, replacing the plug after grease has been applied. This quantity of grease will lubricate the gears for a period of not less than six months.

Locate the battery in a convenient place on either running-board where it will be accessible.

Place short pieces of 1/4-in. flexduct in the wiring holes through the battery box and fender and 1-in. flexduct between the transmission cover and engine hanger on the left and let it extend back past the brake pedals.

Place the instrument board carrying starting and lighting switch, ammeter and dash lamp under the cowl dash to the left of the steering column. The length of the wires can now be determined to suit this particular installation.

8—Run the large negative starter

cable from the negative (—) post of the battery through the flexduct insulation in battery box and by transmission case to the negative post on the motor.

9—From the positive (+) post of the battery run a cable through the flexduct insulation to binding post of the starting switch, as shown in Fig. 6; from the other binding post run a cable to the positive brush-holder of the motor. The terminals on these cables should be soldered and the binding posts tightened with a wrench. The motor circuit is now complete and can be tested by pressing the starting switch.

10—Run lighting cable from the lower brush marked G on the starting unit and connect to terminal marked G on the relay.

11—Run lighting cable from the lighting switch to the side lamps as shown,

connecting one side to some metal part of the body.

12—Run lighting cable from the lighting switch to the side lamps as shown, connecting one side to some metal part of the body.

13—Take the wire going to the head lamp from the push-button switch and join it to the proper post of the lighting switch.

14—Run lighting cable from the one side of dash lamp to tail lamp, grounding one side of tail lamp as shown.

When wiring is finished as above outlined, test each circuit and be sure that connections are made in accordance with diagram. Solder and tape all joints and tighten all binding nuts with a wrench.

Close ignition switch and press the starting switch and starter will crank the engine.

(Continued on page 37)

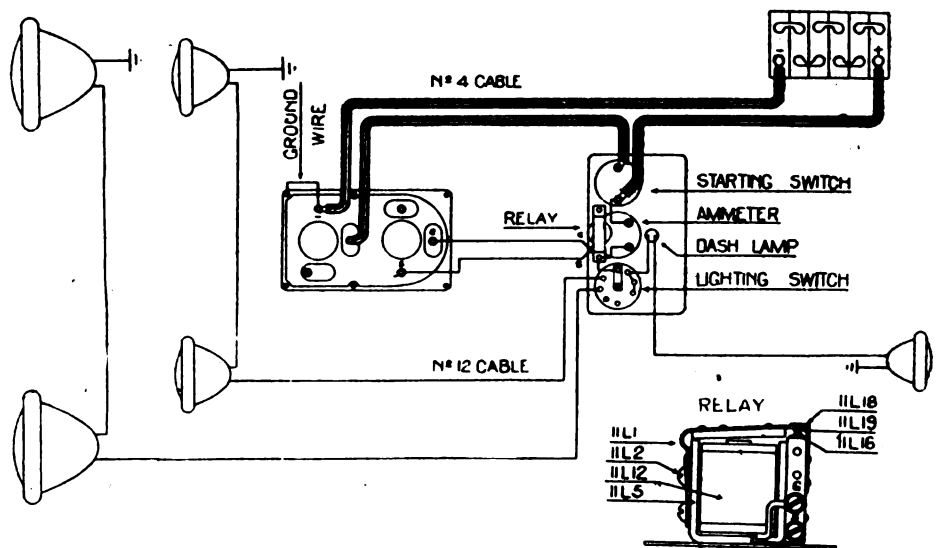


Fig. 5—The wiring diagram of the Fisher system is quite simple

Repairshop Shortcuts

From Motor World Mechanics

NO. 1601—VALVE-SPRING REMOVER

This is a diagrammatic sketch of a valve-spring remover for the Cadillac Eight, the special feature being that it will remove the springs on the 1915 model without requiring the taking off of the generator.—The Kane Cadillac Co., Buffalo, N. Y.

NO. 1602—SHOP VENTILATING FAN

When the dog days come a shop ventilating fan will do a lot to raise the productiveness of mechanics. One can be made of a hardwood board which can be fastened anywhere on the line shafting where there is room for it to swing. It must be securely fastened or there is danger that it may fly off and injure some of the workmen.—C. C. Spreen, Flint, Mich.

NO. 1603—SHIM PUNCH

The punch illustrated is for cutting a single size of hole in shims. A slightly larger design, however, might be constructed with a series of holes of different sizes. The male member of the punch is a cylinder of steel which fits the hole without much clearance and is forced through the shim material by the use of a hammer.—Kane Cadillac Co., Buffalo, N. Y.

NO. 1604—STAND FOR STOCKING SPRING LEAVES

A simple stand suitable for stocking spring leaves can be made of two old radius rods, fifteen pieces of truss rod and a piece of pipe. The radius rods are cut in half and the pieces of truss rod fastened to them with carriage bolts through drilled holes.—William B. Wheatley, Charlotte, N. C.

NO. 1605—BELT IDLER PULLEY

An old Ford belt pulley makes a good idler pulley for a belt that has a habit of running off. It can be mounted on a home-made bracket bolted to the side of the lathe or other tool which has the offending belt.—William B. Wheatley, Charlotte, N. C.

NO. 1606—PRESSURE SYSTEM MAKESHIFT

Where a gasoline pressure system is used, a filler cap with a tire tube valve placed in it is a handy device. In connection with a hand pump, it may be employed to supply pressure when anything happens to the pressure system. Often its use obviates the necessity of towing a car in.—Kane Cadillac Co., Buffalo, N. Y.

NO. 1607—REMINDER ON TIME CLOCK

"Have you cleaned that car?" is the query pasted across the front of the time clock and is a question every mechanic must answer to himself every time he punches a ticket indicating the finish of a job. Formerly men frequently forgot to clean grease and dirt from cars after they had finished with them, but this simple reminder has practically eliminated this oversight.—Kane Cadillac Co., Buffalo, N. Y.

NO. 1608—STEERING-WHEEL PULLER

This tool is designed for Overlands, but obviously may be used on practically all other cars with little or no modification. It comprises two rods threaded at the upper end and fastened at their lower extremities to a semicircular jaw which

slips under the wheel. Bushings may be used for adjustment as shown. Hubs that are too narrow for the main jaw may be accommodated by slipping in the extra piece shown at A.—E. Hempel, Foreman, Overland Branch, Buffalo, N. Y.

NO. 1609—BAR STOCK RACK

A neat rack for bar stock, files and similar articles may be made out of sheet-metal strips slotted to receive the stock as shown.—A. Selzer, Foreman, Buick Motor Co., Buffalo, N. Y.

Scrap Metal Prices

NEW YORK, March 22—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age*:

	Cents per lb.
Copper, heavy and crucible (nominal).....	23.50
Copper, heavy and wire (nominal).....	23.50
Copper, light and bottoms.....	21.00 to 21.50
Brass, heavy.....	16.25 to 16.50
Brass, light.....	12.25 to 12.50
Heavy machine composition.....	23.75 to 24.00
No. 1 yellow rod brass turnings.....	13.50 to 14.00
No. 1 red brass or composition turnings.....	19.00 to 20.00
Lead, heavy.....	6.50 to 6.75
Lead, tea.....	5.25
Zinc.....	6.00

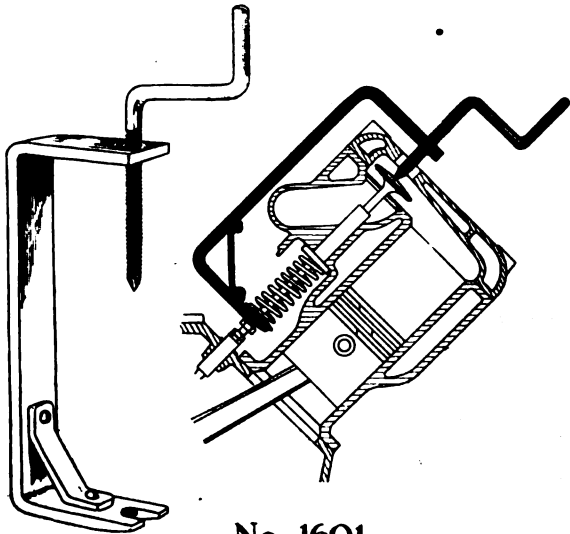
Promotes Brake Inspection Idea

TRENTON, N. J., March 25—The Thermoid Rubber Co. is promoting a brake inspection campaign throughout the United States with the object of inducing car owners to inspect their brakes, see if they are up to par and if not, take them to their garages and have them relined. The big object of course, is the greater sale of brake lining. Endorsement of the idea has been secured from various leading men and the idea is being promoted in the company's advertising.

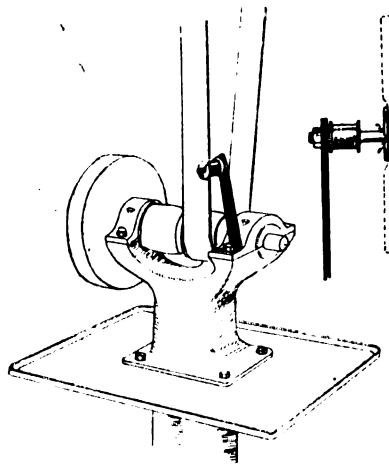
\$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay \$1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly

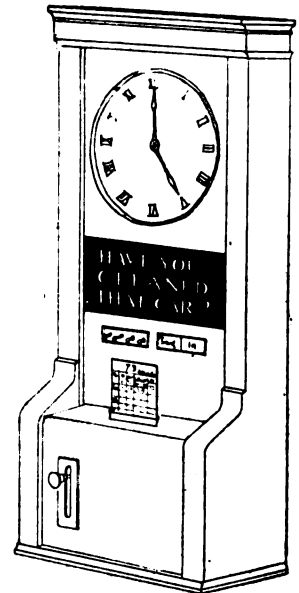
but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.



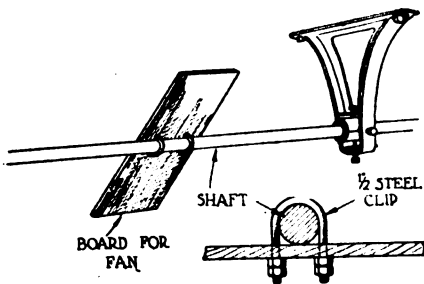
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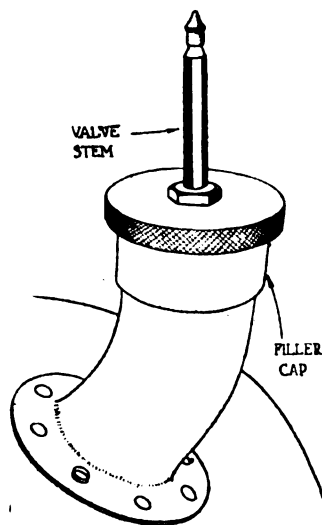
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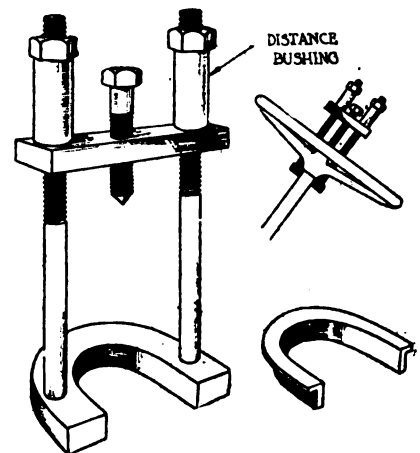
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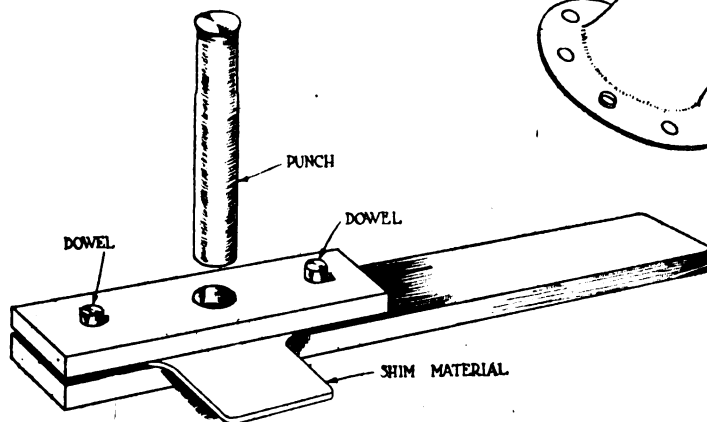
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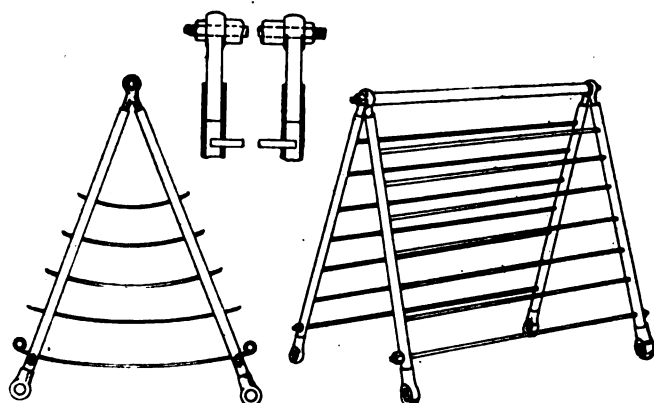
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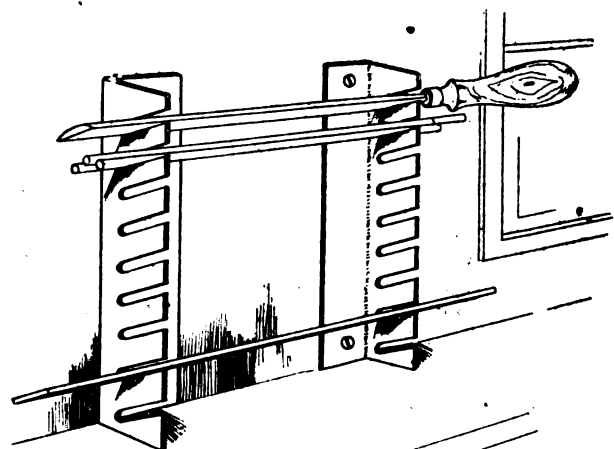
No. 1608



No. 1603



No. 1604



No. 1609

*A Department of***BETTER MECHANICS***No. 61***Alloy Piston Installation***Care and Repair***Do You Know That—**

1. Clearance between the piston and cylinder when alloy pistons are used must be much greater than is the case with cast-iron pistons—and that the amount of clearance depends on the engine cooling?
2. Connecting-rod bearings must be fitted looser with alloy pistons?
3. The life of alloy pistons depends largely upon proper installation?

IT is essential that the repairman become familiar with the installation and care of alloy pistons, and in this the practice differs widely from that used in the case of cast-iron pistons. More care is necessary in installing the alloy pistons because the metal is quite soft and ductile, and hence can be more easily injured by rough handling.

When alloy pistons are being used for replacement of cast-iron pistons, it should be definitely known that the cylinders are accurate.

If scored, grooved or appreciably out of round, reboring or regrinding is necessary. The limits permissible vary with the opinions of different mechanics, but in general it may be stated that the cylinder diameter should not vary more than .001 in. as to roundness.

The following are the oversize cylinder standards determined by the S. A. E. showing the amount of metal to be removed in regrinding or reboring worn cylinders. Most car manufacturers and piston manufacturers carry these standard oversized pistons in stock so that installation may be made with minimum fitting.

S. A. E. Oversize Cylinder Standards

No. 1.....	.0010 in. large
No. 2.....	.0020 in. large
No. 3.....	.0030 in. large
No. 4.....	.0040 in. large

After the cylinder has been put in good condition, the pistons to be installed should be examined. By carefully measuring the diameter in several places it will be determined whether the piston is warped or distorted. This may have occurred through injury in shipment, or subsequently, as alloy pistons not protected by their cylinders are easily injured.

If a distortion of more than .001 in. is noted, this may be corrected in the

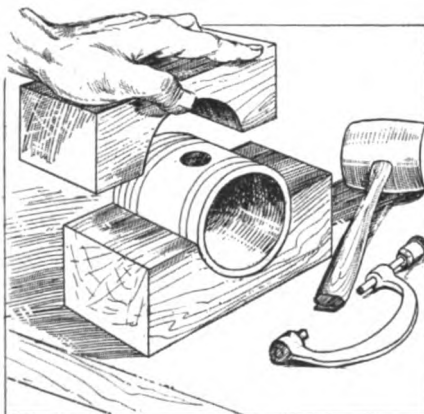


Fig. 1 — Alloy pistons may become slightly distorted, and by placing them between two hardwood blocks, a few blows with a wooden mallet will bring them back to round. The piston should be turned during the operation

manner shown in Fig. 1. The piston is placed between two hardwood blocks grooved to an accurate fit on the side of the piston, and a few sharp blows on the upper block with a mallet while turning the piston around will soon correct the distortion.

Practically without exception, alloy piston manufacturers state that the clearance between the piston and the cylinder does not depend alone upon the bore of the engine in question.

The other features are speed of the engine, efficiency of the cooling system, type of water circulation, length of the water jacket, etc.

If the engine is "hot running," the clearance will have to be increased proportionately, but if "cool running" at slow speed may be less.

It will vary from .015 in. per inch piston diameter to a .025 in. per inch diameter, depending on the above conditions.

Every manufacturer of alloy pistons has determined what the clearance should be for the various engines in general use, and hence when purchasing pistons of this type the repairman should state the engine in which the pistons are to be used so that the manufacturer can supply pistons having the proper clearance.

The method of measuring this clear-

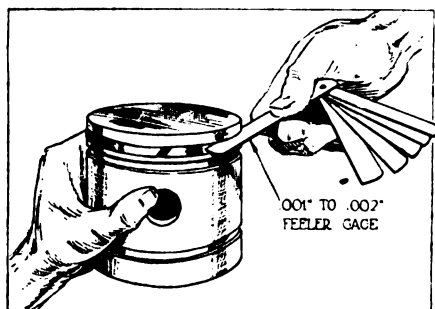


Fig. 4—Each ring should be from .001 to .002 in. narrower than the ring groove it is to occupy, and this distance likewise is measured by a feeler gage. If too thick, the ring is dressed down on emery paper placed on a surface plate

ance is shown in Fig. 2. An inside micrometer is placed in the cylinder in question, and the diameter carefully determined. An outside micrometer is employed to determine the diameter of the piston which is being fitted to that cylinder. The difference between the two micrometer readings shows the clearance, and this should be at least .015 in. per inch piston diameter.

Quite as essential as obtaining correct piston clearance is properly fitting the rings. The first step in fitting the rings is to place a piston without rings in the cylinder in question and then slip the ring to be fitted in behind the piston, as shown in Fig. 3. The piston may be then pulled up against the ring, squaring the ring up in the cylinder.

A thickness gage is next applied in the openings of the ring, and the distance determined. As a general rule the clearance should equal .002 in. per inch of cylinder diameter. However, this rule does not hold through with the various patent rings on the market, as is illustrated by the following table showing the opening between the ends of the McQuay-Norris Mfg. Co. Leak-Proof rings:

2 to 3 in. in diam.,	.010 in. opening.
3 to 4 in. in diam.,	.016 in. opening.
4 to 5 in. in diam.,	.018 in. opening.
5 to 6 in. in diam.,	.022 in. opening.
6 to 7 in. in diam.,	.026 in. opening.

This amount of clearance permits the

rings to contract without the ends coming in contact, causing distortion and subsequent scoring.

Rings Should Fit Freely

The rings should also fit freely into the grooves in the piston which they are to occupy. In general, the ring should be from .001 to .002 narrower than the groove, and this clearance can be determined in the manner shown in Fig. 4. Before making this test the ring groove should be freed from all filings and grit, and if the piston be old, it should be noted whether the groove walls are straight and not worn to a shoulder.

Most manufacturers provide over-width rings, and if the rings are worn to a shoulder, these may be removed in the lathe.

The ordinary method of placing the rings of the cylinder is to use hacksaw blades or thin steel skids to slide the rings in place past the ring grooves. Ordinarily this method is too harsh for alloy pistons, and it is to be remembered that alloy pistons are quite soft and the metal may be drawn over the ring groove, preventing the free operation of the ring. The ring should be applied to the piston by means of a scissor-type spreader and care used not to injure the piston.

Wrist pin installation is next made. In those cases where the wrist pin is clamped in the connecting-rod and turns freely in the piston casting the fitting is quite simple. It is only necessary to see that the wrist pin will turn in the piston without binding. However, in that construction where the wrist pin is clamped in the piston and the bearing is on the upper end of the connecting-rod, care must be taken else the piston will be distorted.

The first step is to obtain a driving fit between the wrist pin and the piston. This means that the wrist pin hole should be about .001 smaller than the wrist pin. Of course, the connecting-rod bearing should work freely on the pin before the assembly is made.

Properly Fitting Wrist Pins

The next step is to heat the piston by immersing it in boiling water or by

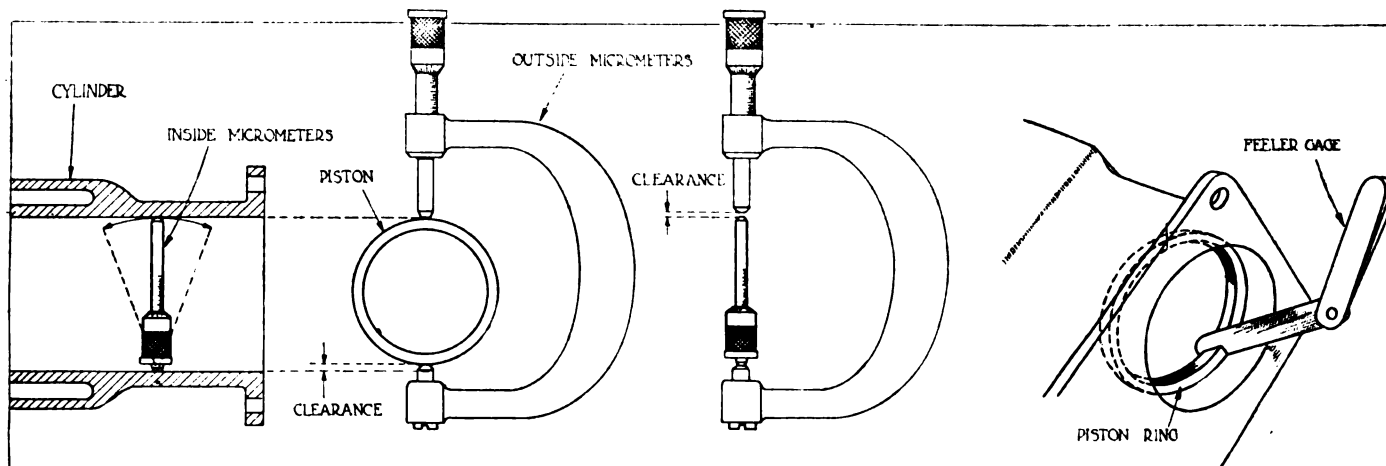


Fig. 2—Left—Proper clearances must be observed in fitting alloy pistons, and this is the manner of measuring that clearance. Fig. 3—Right—It is essential that the rings have the proper clearance at the ends, and the amount is measured by a feeler gage after the ring has been squared up in the cylinder it is to occupy



My Daddy Bought Me a Government Bond THIRD LIBERTY LOAN Did Yours?

This poster can be secured at the Liberty Loan headquarters in any city where there is a Federal Reserve Bank. Get some posters and use them. It's an easy way to help. Ask other business men if they don't want some too

gently applying a torch flame to the piston head. Then, supporting the hot piston in the wooden block shown in Fig. 1, carefully press the pin in place after lining the lock in hole in the pin up with the mating hole in the piston. By not pounding or forcing the pin in place and by following the above instructions the wrist pin will remain tight in the piston and the piston will not be sprung out of round.

Adjustment of Bearings

Due to the fact that alloy pistons reduce the weight of the reciprocating parts and decrease the stress on the crankshaft bearings, it is permissible and advisable to fit the crankshaft bearings somewhat looser than is the practice with cast-iron pistons. The bearings should be adjusted without being loose and should not be tight enough to make the engine stiff.

It is most important to see that the connecting-rod bearings are in align-

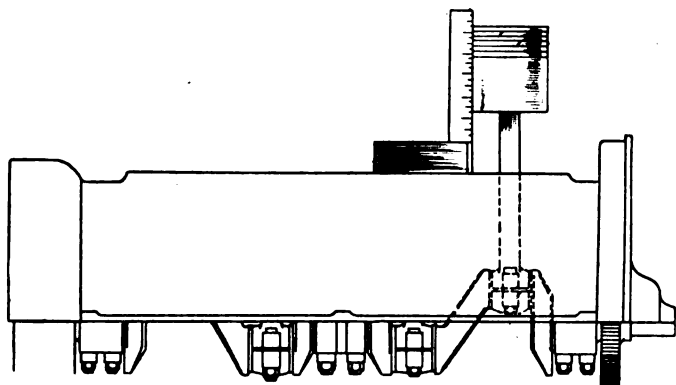


Fig. 5—The pistons must be in alignment with the cylinders, and a square placed on the crankcase and resting against the piston indicates whether this is the case. On engines having the cylinders and crankcase in one casting, arbors are placed in the connecting-rod bearings, and the test made before assembly

ment—that is, that the bearings in the two ends are parallel. This can be determined before assembly by clamping the lower bearing on an arbor and inserting an arbor in the wrist pin bearing.

These arbors should project at least 5 in. from each side of the rod and measurements taken between the two should be equal. If not, the connecting-rod should be sprung slightly until this is the case.

Another method of obtaining this alignment is shown in Fig. 5.

After the connecting-rod assembly has been bolted to a crank, a square is placed first in one side and then at the other side of the piston being tested.

The space on both sides of the head should be equal, and if not equal the connecting-rod should be sprung until this is the case. As stated, this alignment is of great importance and has everything to do with satisfactory operation and long life of the installation.

Of course, this method cannot be used in aligning cylinders having the Ford type block where the cylinders and upper

half of the crankcase are in one piece. In this case the first method of alignment should be followed and the space between the piston head and the cylinder wall should be equally divided on each side directly above the piston pin.

Before starting the engine after the installation of alloy pistons an excess amount of oil should be placed in the oiling system, and enough oil should be placed on top of the piston head to thoroughly lubricate the rings and cylinder wall.

The engine should also be cranked over several times before starting to spread this oil about.

It is not desirable to prime excessively an engine having alloy pistons, as this may dilute the lubricating oil and cause scoring. The engine should be run three to five times at five-minute intervals for five minutes to permit the pistons to work in, and for the first few hundred miles high speed should be avoided.

At all times misfiring should be corrected as quickly as possible, less the

missing action permit the deposition of gasoline, destroying the lubricating oil and causing scoring.

The following are the common causes of weak compression in the case of an engine fitted with alloy pistons, though in most instances the same would hold true with engines having cast-iron pistons:

1. Piston worn out.
2. Piston blown through.
3. Wrist pin stuck in the boss.
4. Piston ring stuck in the grooves.
5. Worn cylinders.
6. Scored pistons.
7. Ring grooves worn out.
8. Piston ring worn.

The remedy for the first two is to install a new piston, for the third a new over-sized piston pin is necessary after the wrist pin hole has been reamed. For the fourth, the piston may be caught in a lathe and the rings trimmed over-size, after which an over-sized ring is installed.

When the cylinders are worn it is most advisable to have them reground or rebored, though in some instances the installation of a patent ring may be satisfactory providing the wear is slight.

In many cases when an alloy piston has been scored it may be smoothed up with a mill file and replaced. However, if the scoring is very deep a new piston is necessary. It is a rare occurrence when alloy pistons are used that the cylinder itself is injured.

In alloy piston practice, as in others, it is most essential that an oil standing the zero test be used in winter, as otherwise there is a possibility of injury resulting from lack of lubrication.

To Punish the Terrible Hun—

By S. T. Williams*

FAR from the din of battle,
Back from the cannon's roar,
Safe from the Maxim's rattle,
Where the Zeppelins never soar—
Here are the plodders, the workers,
Ten times the men in the line,
The men who may think they're shirkers,
Whose laurels are sweat and grime.
Working, producing, and sweating,
That others may go and fight;
Working, but never forgetting
The fruit of their work is Might—
Might to the men in the trenches,
Might to the men in the air,
Might from the men at the benches
To men that are "Over There."

So it's hammer and pound, my hearties,
Keep at it early and late,
Till the echoes resound with a mighty sound,
Like a terrible Hymn of Hate.

Oh, the tools of Thor, from the brain of man,
Are caught by the drafting pen
And carried on to the finished plan
Through the hands of countless men.
Through countless more the work proceeds,
Through hands wielding file or plane,
And the very fact that the plan succeeds
Is proof of their care and pain.
Care—lest their skill shall fail them,
Pain—lest their work be wrong,
And naught does it all avail them,
Save as part of that mighty Throng—
The Throng that fashions the airplane,
The Throng that mounts the gun,
The Throng that makes the tools of war
That will punish the terrible Hun.

So it's hammer and pound, my hearties,
Keep at it from morn till night,
Till the echo goes over the water
And drives the Hun to flight.

*S. T. Williams, formerly on the Motor World staff, writer of the Better Mechanics and other stories, is now stationed in Philadelphia as Naval Aeronautical Mechanical Engineer.

THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

State Laws on Use of Trailers

Editor Motor World: Have you any record of laws enacted by municipalities or commonwealths regarding the use of trailers with motor-driven vehicles?

Can you give us a synopsis of such laws enacted in force or any reference to court decisions in such cases and where court record of such ruling may be found?

We understand that a law prohibiting the use of trailers is in force in the West Indies and wish to know whether any of the states have similar laws, or whether some states have laws permitting their use under limited conditions. —Goodyear Tire & Rubber Co., Akron, Ohio, J. E. Davis, Dealers' Sales Dept.

After careful examination of my state motor vehicle law files, I find that I have a record of trailer legislation only in the following states: New York, New Jersey, Pennsylvania and California.

The definition of motor vehicle in most of the states is as follows:

"The words 'motor vehicle' shall include automobiles, motorcycles and all other vehicles propelled by power other than muscular power."

The provisions of the laws of the above states regarding trailers are as follows:

NEW YORK—Every owner of a vehicle commonly known as a trailer for the transportation of goods, wares and merchandise not propelled by its own power to be drawn on the public highways by a motor vehicle operated thereon shall also make application for the registration thereof in the manner herein provided for an application to register a motor vehicle without the statement relating to motive power, but the application shall set forth the combined weight and carrying capacity of such trailer.

Fees for Trailers (based on combined weight of the trailer and its carrying capacity):

Two tons	\$5
More than two tons and not more than five tons	10
More than five tons and not more than seven tons	15
More than seven tons and not more than ten tons	20
More than ten tons and not more than fourteen tons	30

In excess of fourteen tons the fee is \$30, with an additional fee of \$5 for each ton in excess of fourteen tons.

Provided that if any such trailer is originally registered after Aug. 1 in any year the register fee for that year shall

be one-half of the fee herein provided for.

NEW JERSEY—Trailer is defined to be a vehicle of more than two wheels without motor power drawn or propelled by a motor vehicle.

Semi-trailer is defined to be a two-wheeled vehicle without motor power drawn or propelled by a motor vehicle.

Trailers Registered; Lights.—The Commissioner of Motor Vehicles shall register all vehicles trailing after or propelled by motor vehicles upon application being duly made, which shall contain a brief description of such vehicle, indicating its capacity and weight. The fees for such registration shall be three dollars for each such vehicle. The Commissioner of Motor Vehicles shall adopt a form of registration tag of the same character and workmanship as the regular tags for automobiles; such tag shall have the letter "T," the number, and shall be affixed to the rear of the trailer if drawn, and to the front of the trailer if propelled, and shall be lighted in the same manner as tags of an automobile. If, however, the trailer is propelled, it shall carry two white lights to the front, as provided for automobiles in section four of the act to which this is a supplement. P. L. 1915, p. 150.

PENNSYLVANIA—Trailer is defined to be any wagon or truck drawn by a traction engine or tractor for hauling material or freight of any kind, excepting water and fuel tanks, or graders, stone crushers, sawmills and agricultural equipment not self propelled.

The fee for registration of trailers shall be \$3 for each trailer of less than 10,000 lbs., weight of trailer and load combined, and \$5 for each trailer of 10,000 lbs. and more. No trailer shall be licensed whose gross weight of ve-

hicle and load combined shall exceed 24,000 lbs.

A light must be displayed in the rear of the trailer, as must a number plate. Trailers must be equipped with smooth wheels.

CALIFORNIA—Motor vehicles operated on the public highways drawing a trailer are deemed to be automobiles.

Every owner of a trailer or trailers which shall be drawn upon a public highway when any such trailer shall exceed one ton in weight shall cause to be filed by mail or otherwise with the department an application for registration on a blank to be furnished by said department for that purpose, containing, in addition to such other particulars as may be required by said department, a statement of the name and post office address of the applicant, and with such application the applicant shall deposit the proper registration fee, as provided in section seven of this act.

Sec. 4.—Upon the receipt by the department of an application for registration of a motor vehicle or trailer or trailers accompanied by the fee required by section seven of this act the department shall file such application, and if satisfied that the applicant is entitled to registration of said vehicle or vehicles as the owner thereof within the meaning of this act, and if all fees theretofore payable to the department in connection with the registration, or any renewal thereof, of said vehicle or vehicles shall have been duly paid, shall alphabetically, and also numerically, register such motor vehicle or trailer or trailers with the name and post office of the owner, together with the facts stated in such application, in a book or on index cards to be kept for the purpose, under a distinctive number assigned to such motor vehicle or trailer or trailers by the department, which book or index cards shall be open to inspection by the public during reasonable business hours. A full record of all motor vehicle registration shall be posted daily by the department upon a bulletin board so located so as to be easily accessible to the public, and no information relative to any such registrations shall be made by any employee of the department in advance of such posting.

Sec. 5.—Upon the filing of such application and the payment of the fee provided in this act the department shall upon registration assign to such motor vehicle or trailer or trailers a distinctive registration number.

No motor vehicle shall be operated or driven over any public highway or bridge drawing or having attached thereto more than two trailers; provided, that all four-wheeled trailers excepting light camping trailers shall be equipped with suitable brakes.



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Editorial Observation

Plug the Bung hole; Use the Spigot

NOW that the motor shows are all over, and the manufacturers are squared away for the remainder of the season with a new season ahead, it is time to plan real conservation; that is, wiping out extravagant waste. And one place to begin is at the publicity fount and advertising department.

If some one were to say that at least \$100,000 is thrown away by the motor industry each year in photography alone it might not sound like a large item. But that is perhaps a minimum. Here are some figures:

There are at least 100 cities in the United States that have newspapers which pay attention to the motor industry so that they have a motor department. In each city there are, perhaps, two papers at the lowest estimate.

Keep Record of Newspapers Using Pictures

Now, every week there comes from the motor factories a flood of stories and pictures to these papers. And the men sending out the flood, with very few exceptions, have a checking system to show whether or not all the papers on the list use pictures.

Every paper in the country does not use motor pictures. Some of them have not used pictures for some years. And yet every week they get this assortment of pictures that finds its way to the waste basket. When show time comes the operation is increased. The editor of one newspaper, following a show, asked the paper's photographer to estimate what the pictures he received for two weeks, and never used, represented. It was between \$75 and \$100. And this has been going on year after year.

Now, these pictures cost a lot of money to produce. Expert photographers are selected, and they get anywhere from \$1 to \$3 for good prints. These are turned over to the factory—and out they go. Take the show season, for example. Some companies send out 10 to 15 pictures comprising views of cars and those of factory officials. And they go under first-

class mail—with special delivery stamps in some instances to pile up the cost.

As there are but two national shows, New York and Chicago, the fallacy of including factory officials is obvious. Instead of giving a chance to the home dealer—the man who is dependent upon the home folks for making the sales—show time finds the publicity man at the factory trying to crowd the factory people into the limelight where it does no good.

What does the man in New Orleans, Dallas, Savannah, San Francisco, Jacksonville, Boston, Seattle and elsewhere care about what Sales Manager Jay Jaymes, Advertising Manager Bopeep, Vice-President Condeign, etc., at the Umty Six factory at Oshkosh thinks about the frost on the pumpkin in the fall? He is 1000 miles away from that factory. He does not know and never will meet the officials named. And their opinions are not even read in many instances.

With a little planning local stories could be fixed up and the local dealers given the benefit of the items and the pictures. And it would aid the company to boost its own dealer. Some papers are beginning to see things that way and all factory stories are changed so that the local man is given the publicity. The papers like local items. So do their readers.

Should Plan Now to Systematize Publicity

Therefore the factory officials should plan now to systematize the publicity work. Some have done so already. It would be an easy matter to check what papers used pictures and what ones did not.

And the system should be carried further. Some papers use pictures with a news tinge, and never run a picture of a car that has no passengers. Therefore find out what kind of pictures are used. As the volume of pictures is increasing with a tendency to less papers using them, now is a good time for the National Automobile Chamber of Commerce to send out a notice to its members to avoid waste.

You MUST Buy Liberty Bonds

The Editor Answers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

A Letter for Sales

Editor Motor World: Please send me copy of a letter to mail to car prospects.

I have recently received the contract given by C. T. Silver, as one of his service stations, with the right to sell any car he handles in New York.

The fact that I must go to his New York place with a prospect and get the order myself I want to impress upon each person, as otherwise I get no sale.

Each customer is given a coupon book good for a year and the service is paid for by the coupons. Mr. Silver makes good to me at the rate of \$1 per hour, or fraction of an hour.

It seems to me that anyone living here would buy the car through me if they understood the matter, and you can get up a suitable letter much better than I can.

You have expressed your willingness to help the trade and I am asking you to do this for me.—C. H. Minchin, Minchin's Garage, Greenwich, Conn.

The Editor Answers

Dear Mr. Minchin:

We have endeavored to incorporate in a letter the points we believe should be included, and it makes the letter seem perhaps rather long. We believe, however, that you will have no difficulty getting it read and that it should bring you some results.

We mention the enclosure of a booklet. You can enclose this or send it under separate cover and you may refer to whichever car you think the prospect is most interested in. Do not include literature on more than one car.

We also mention that one of the pages is marked. We suggest that you take a pencil that makes a big red, blue or black mark and underscore, or otherwise mark, some section of the book referring to a good sales point. The principal value in this is that the prospect will have some reason for opening the book when it comes and the value of the literature will be increased.

Free Tickets to Show

Were you in position to give free tickets to a show you could conclude the letter with an offer to see that the man could get in for nothing in case he will let you know what day he wants to go, but inasmuch as the Silver company may not be supplying free tickets this is a matter to be handled by your own

judgment. Sometimes not a great deal is gained by giving away tickets to prospects.—EDITOR.

The Letter for Minchin

Dear Sir:

Every one is interested in automobiles, so I assume we are on familiar ground when I address you on that subject.

There have been so many conflicting stories printed about the automobile industry that it is difficult for one to grasp the true situation. I wish to remark that the automobile factories are still running, cars are still being built and sold, and the government to-day regards the car as one of the great essentials of American life. There is going to be no "curtailment."

Also, we have all talked pro and con about the patriotism of not spending money. Economists, however, tell us that we should continue to spend money—if we have it—in order that money may remain in circulation. Money in the bank or an "old sock" doesn't do the government or the war any good. What helps is the money that is in circulation. If goods are bought the money eventually gets to the workman—and he buys bonds. There is therefore nothing patriotic in not buying a car.

The third point I wish to make is that I am now the Greenwich representative of the cars handled by the C. T. Silver Motor Co., of New York—the Silver-Apperson and Kissel.

With spring but a short distance away and with the roads at present permitting driving most of the time, March is an excellent time to secure an option on one of these cars. Again—if you buy a car of me some of the money eventually gets to my employees and they can finance the Liberty Bonds they have bought on time.

With every one of these cars goes a service book, about which I should like to talk with you.

One other point I want to add is that the car isn't considered "sold in Greenwich" unless I can be present in the Silver salesroom when the arrangements are made. I wish you would not overlook that point. Certain contract conditions must be met or the car isn't considered "home town" business.

Inclosed is a booklet in which you may be interested. Note the page I have marked.

Very truly yours,

P. S.—Our service plan is one of the important parts of your ownership of a car. We can easily explain it over the telephone.

Should I Sell Gas?

Editor Motor World: We would like to have your opinion on the following matter:

We are, at the present time, planning to build an up-to-date garage and sales room. Heretofore, unless a garage had

a complete gasoline pumping outfit, it was not considered good business, but owing to the great number of service stations that are being placed throughout the country, the thought comes that it will be but a short time before the garage dealer will not sell nearly as much gasoline as has been sold in the past, and we are seriously considering not putting in a station.

We realize that this may arouse considerable adverse comment from the motoring public, but, on the other hand, at no time has the handling of gasoline been considered a profit producer, and it seems to us that with the great number of gasoline service stations coming into use it might not be so radical a thing to do after all.

Your opinion will be greatly appreciated.—MORRIS ADLER-MOLLER CO., Quincy, Ill.

Answer—Doubtless gasoline selling conditions in your territory have made it seem that there is not a great deal of profit in this business and that you should not endeavor to get it. To give our own opinion, however, were we going to build a garage we should not consider putting it up without having a curb filling station unless you are very far from streets that get a heavy business.

If it is at all possible for you to get any gasoline business, you should by all means put in this curb station. Despite competition it is often possible by advertising and other means to get the bulk of the gasoline trade, and on general principles we should say that it would be best for you to put in this station and at the same time formulate plans for getting as large a share of the gasoline business as possible and at as great a profit.

In connection with gasoline it is often true that a man is willing to pay a trifle more if he can get good gasoline and good service.

Please let us know whether we have rightly summed up conditions as they affect you.

All the Way From England

Editor Motor World: I am enclosing my check for the renewal of my subscription to the Motor World, and I feel I should like to congratulate you upon the excellence of your journal.

For the past three years I have been in France, but recently I have been returned to this country wounded. Now that I am home again I am hoping to renew acquaintanceship with many of the British dealers I did business with before the war, and shall introduce your paper to them.

Although it is conducted for the benefit of the American industry, the Motor World contains much of value to the Britisher, and if the dealers here will adopt some of the excellent ideas published in its pages I feel it will be a great help to me when I start distributing automobiles once more.—Captain S. Gordon Marshall, A.S.C., Service Club, 19 Stratford Place, London, W., England.

The RETAIL NEWS

MIDDLE WEST

The E. W. Clark Motor Co., Fond du Lac, has been reorganized, with John Immel as president. Several improvements have been made in the building, including an addition to the repairshop.

Trowbridge & Fox, Washburn, Wis., have opened salesrooms and will handle the Buick.

The Olympian Car Co., Milwaukee, has opened headquarters at 180 Fifth Street, with Robert G. Bates as sales manager.

The W. H. Y. Electric Equipment Co., Milwaukee, has opened an office and service station at 152-154 Fifth Street, and will be exclusive Wisconsin distributor of the Heinze-Springfield electric cranking and lighting system.

The Bursinger-Durkin Co., Milwaukee, recently incorporated, has been appointed distributor of the Moon and Inter-State cars and Indiana and Atlas trucks and has opened headquarters at 622 Wells Street.

Rinden & Deering, Madison, Wis., have leased the Hallmann Garage at 924 Williamson Street and will conduct it as a general repairshop and service station under the style of City Garage.

F. A. Richards and Elmer Anderson, Che-tek, Wis., have been appointed Ford dealers. Richards will convert his barn into a garage and service station.

The West Bend Motor Co., West Bend, Wis., Ford dealer, is now owned solely by Theodore Loehen, who purchased the interest of Elmer Eberhardt, the junior partner.

Metzlig Bros., Berlin, Wis., are installing additional machinery and equipment.

The Henry & White Auto Co., Ashland, Wis., has been organized by Edward Henry and George White to handle Dodge cars. Display rooms and service station have been opened at 317 West Third St.

Arthur Russell and Henry Kohnke, Augusta, Wis., have been appointed Overland dealers and are opening salesrooms and a service garage in the Lange Building.

E. E. Fernetta, Saginaw, has moved his garage and service station to 224 North Hamilton Street.

Klopf & Roberts, Saginaw, have moved to new quarters at Holt and Sheridan Avenues.

The Sutton Sales Co., Saginaw, distributor for the Reo and Hudson, has opened a new service station at 209 South Second Street.

The Saginaw Crow-Elkhart Sales Co., Saginaw, has been formed by C. C. Hyzer, R. H. Fleischmann and Frank Adrian, and has opened salesrooms at Warren and Lapeer Avenues.

The Garber-Buick Co., Saginaw, has moved into its new four-story sales and service station.

Paul Nissen, Saginaw, has moved his battery department to the main floor of the Nissen Service Station, 803 Genesee Street.

The Hubbel Auto Sales Co., Saginaw, Ford dealer, has moved to Court and Niagara Streets.

Knight & Matzen, Flint, Mich., Maxwell and Studebaker distributors, have moved to a new salesroom at 702 North Saginaw Street. The service station has been moved to 711 Buckham Street.

The Gillam & Moor Co., Saginaw, has moved to new quarters at Genesee and Janes Avenues.

The Akron Tire Corp., Grand Rapids, has opened its new building at Bond Avenue and Crescent Street.

The Majestic Motor Sales Co., Detroit, has been formed by E. E. Turner, former sales manager, and W. J. Senecal, former manager of the used car department of the Gordon Auto Sales Co., to handle used cars. The office and salesroom will be located at 734 Woodward Avenue.

L. J. Robinson, president of the L. J. Robinson Co., Detroit, distributor of Maxwell and Chalmers cars, has sold his business to the Maxwell Motor Co., Inc., which will eventually operate the store as a factory branch. For the time being it will be conducted under the style L. J. Robinson Co. and continue its regular business.

Thomas J. Doyle, Detroit, Dodge distributor, has moved his used car department from Woodward Avenue to the Palace Roller Rink at Forest Avenue.

The Curtiss-Detroit Sales Co., Detroit, has been opened here as a branch of the Curtiss Tire & Rubber Co., Muskegon, Mich.

J. H. Vernet, Menominee, Mich., has been appointed dealer in the National, Oakland and Nash and has opened display rooms and a service station in the Wistrand Block on Grand Avenue.

New Garages

S. NorickFt. Wayne, Ind.
H. C. DixClinton, Ind.
Monger & SonGreenfield, Ind.
James KellyAnderson, Ind.
Charles Peterson (addition).....Columbus, Ind.
Merritt & Cooley.....Fairbury, Ill.
Park Ridge Garage.....Park Ridge, Ill.
H. S. Shurts.....Decatur, Ill.
West Lake GarageCleveland
H. Melsner.....Manitowoc, Wis.
F. A. RichardsChetek, Wis.

SOUTHWEST

Bryan T. Blake and Lou Bardwell have purchased the Independent Garage, 318 Houston St., Manhattan, Kan., formerly conducted by F. C. Maas.

Will Chestnut, Clay Center, Kan., has formed a partnership with his brother and purchased the Auto Inn.

Taylor Bauer and Parker Bros., Wathena, Kan., have bought the garage of Larzelere Bros.

C. H. Ferguson, Garnett, Kan., has opened the Crescent Motor Sales Co.

Nelson Hay, Beloit, Kan., has bought the tire shop of R. L. Kenty.

The Hill-Howard Motor Car Co., Arkansas City, Kan., is planning to erect a new building.

Harry L. Carper, Minneapolis, Kan., has opened a new battery repairshop.

Geo. E. King, Atchison, Kan., has sold the King Auto Sales Co. to William Wagner.

The Hempel Auto Co., Kingman, Kan., has opened quarters.

E. L. Porter, Hardtner, Kan., has bought the garage of the Thompson Auto Co.

W. G. Carey and John A. Reed, Belleville, Kan., have leased the Mosher Garage and will operate it under the style Carey & Reed.

S. H. Knapp, Concordia, Kan., has bought the interest of C. S. Shriver in the Studebaker Garage.

The Arnold Motor Co., Ellsworth, Kan., has opened salesrooms in the Ross Building.

Andy Phillips, Grinnell, Kan., has sold his interest in the Grinnell Garage.

The Varnum Tire Service, Augusta, Kan., was recently opened here with F. T. Colgan as manager.

Fred Stocker, Parsons, Kan., has bought an interest in the O. H. Bond Motor Co.

Murphy & Billings, Ottawa, Kan., have bought the Nelson Garage.

Jack Gay, Wichita, has sold the Liberty Garage at 836 Main Street to the Strong Trading Co.

Lloyd Rife, Nortonville, Kan., has sold his interest in the South Side Garage to W. J. Scott.

S. W. Gault, Bethany, Mo., has leased the Brown Motor Co. Garage.

A. R. Harmon and Chas. Hershfield, Webb City, Mo., have opened a new tire and vulcanizing shop. The firm will be styled Webb City Vulcanizing & Supply Co.

The Dickinson Motor Co., Brookfield, Mo., has moved into a new building.

J. L. Baron, Cameron, Mo., is planning to establish a vulcanizing department in his harness shop.

Joe Lethgo, Lamar, Mo., has sold his vulcanizing and repairshop to Geo. Button.

The Velle Motor Co., Joplin, Mo., has opened salesrooms at 108 North Main Street.

The Fulton Motor Co., Fulton, Mo., has bought the business of Maughs & Conner Auto Co.

The Bartz Motor Co., Spearville, Mo., has succeeded Bartz & Johnson.

J. M. Dunn, Mound City, Mo., will soon open a branch at Brookfield, Mo., to handle the Maxwell and Oakland.

J. H. Stone, Tonkawa, Okla., has opened a repairshop.

Funnell & Adams, Davenport, Okla., have bought the garage of Terry & Meredith.

John Camba, Picher, Okla., is planning to remodel his garage.

Spalding & Swinney, Tulsa, Okla., have taken over the retail business of the Purdy Motor Co.

Lloyd Thomas, Holdenville, Okla., has moved to new quarters.

The Buick Motor Car Co., Pauls Valley, Okla., will move soon to new quarters.

Henry Fondren and Roy Gardner, Kiowa, Okla., have purchased the Palace Garage from D. D. Tucker and A. A. Tipps.

Floyd Sullivan, Waurika, Okla., has sold his interest in the firm of Sullivan & Golden to John Golden, who will hereafter have complete charge of the business.

J. M. Heath, Cherokee, Okla., has moved his tire shop to the Henderson Bldg.

E. M. Chapman, Tishomingo, Okla., has bought the McSwain Garage.

Claude D. Adams and Walter D. Rosch, Waco, Tex., have bought an interest in the Overland Sales Co.

Paul Compton, Chickasha, Okla., has opened an automobile salesroom.

W. C. Fullilove, Snyder, Tex., has sold his garage to Gay McGlaun and Fred Parsons.

H. Hutchison, Haskell, Tex., has bought the Haskell Rubber Co. from W. H. Starr.

New Garages

Baird Motor Co. Pauls Valley, Okla.
 Geo. Cantrell Chandler, Okla.
 John Standridge & Son Maud, Okla.
 Sanford Garage Joplin, Mo.
 W. E. Davis Carthage, Mo.
 Sam Day Seymour, Mo.
 W. H. Murphy Joplin, Mo.
 Essenkay Joplin Co. Joplin, Mo.
 Ganger & Hubb Carthage
 B. H. Rogers Olathe, Kan.
 Murphy & Billings Ottawa, Kan.
 Hesse Motor Car Co. Leavenworth

NORTHWEST

The Newby Motor Car Co., Des Moines, has been taken over by Carl Manbeck, and is now styled Manbeck Motor Sales Co.

Leslie Crossman, Dayton, Iowa, has sold the Crossman Auto Co. to Lawrence Hendricks and Oscar Stark of Boxholm, Iowa.

Wayne N. Pier, Sac City, Iowa, has opened a branch there for the Para Tire Co.

John Kuhl, Ogden, Iowa, has bought an interest in the Hagge & Claussen Garage.

Dewey McGrew, Oakville, Iowa, has bought the E. C. Rold Garage.

Harold McCulla, Norfolk, Neb., has taken over the Overland-Nebraska Co.

New Garages

L. A. Walch Belleview, Iowa
 M. L. Flinn Sioux City, Iowa
 W. E. Brooks Milford, Iowa
 Paterson Sales Co. West Liberty, Iowa
 W. R. Seeley Waverly, Iowa

MOUNTAIN

Mowrey & Hutchinson have opened a new vulcanizing plant at 429 South State Street, Salt Lake City.

The Granite Auto Repair Co. has opened a new repairshop at 3242 South State Street, Salt Lake City.

Joe. Douglas has opened a vulcanizing shop at Sugar Station, Salt Lake City.

The Edwards & Warden Motor Parts Co., Inc., has opened a battery and ignition service station at 131 East Broadway, Salt Lake City.

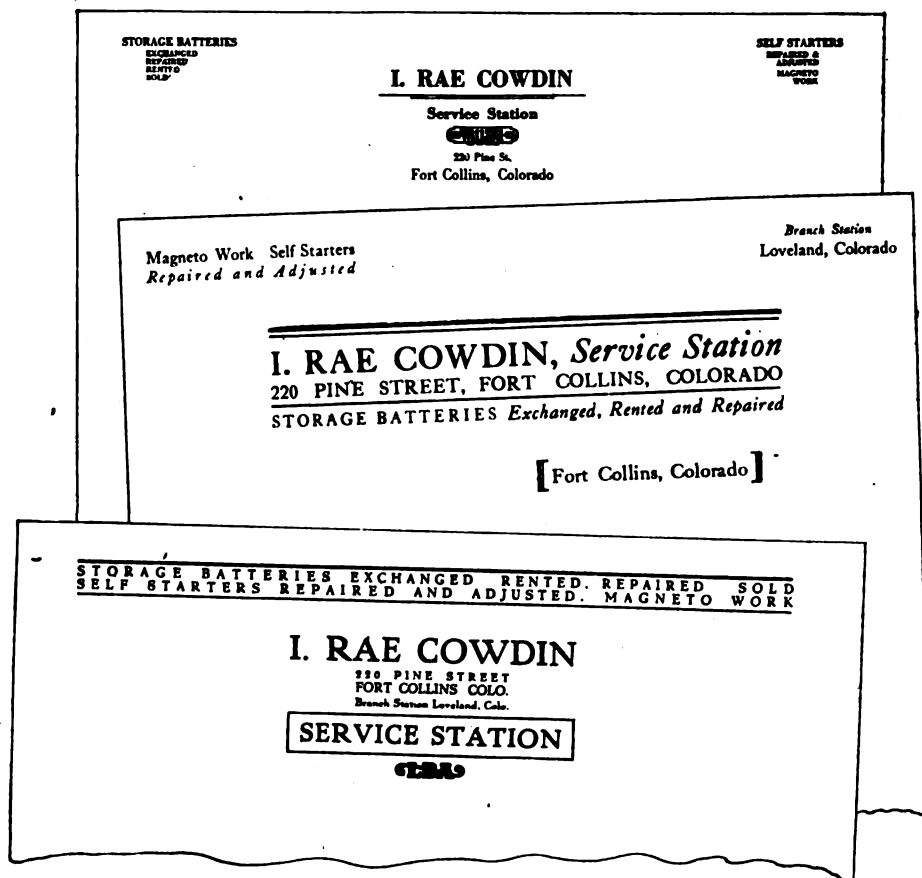
H. Ray Johnson has opened a repairshop at 112 East Thirty-third Street, Salt Lake City.

E. Peterson has moved into new quarters at Kaysville, Utah.



This poster can be secured at the Liberty Loan headquarters in any city where there is a Federal Reserve Bank. Get some posters and use them. It's an easy way to help. Ask other business men if they don't want some, too

Two Suggested Letterhead Improvements



The upper letterhead was sent to Motor World with a request for a suggestion as to improvement. Cowdin does mostly an electrical business, with about half of it Willard work. He has opened a branch in Loveland, Col. One fault with his head is that his name is too modest and the type in the upper corners is ragged. The lower head is Motor World's selection as the better of the two improvements shown. This makes Cowdin's name stand out and emphasizes his service station and Willard work, while the ruled-in lettering across the top serves as additional information and as a binder. The center head, with Fort Collins in brackets, is a distinctive set-up and is in very good style at the present time. In the lower head Motor World used an LBA mark because it did not have a "Willard" mark of suitable design

New Garages

C. M. Udy Farmington, Utah
 Central Garage Co., Inc.,
 Temple Street, Salt Lake City
 Hyland Motor Co.,
 Social Hall Avenue, Salt Lake City
 Harry Brackren,
 Social Hall Avenue, Salt Lake City
 Kissel Motor Co.,
 Social Hall Avenue, Salt Lake City

PACIFIC COAST

M. D. Rathbun has opened a repairshop on California Street, Redding, Cal.

Johnson & Sund have purchased the Bracchi Garage, Palo Alto.

W. H. Winn has opened a Cole repairshop on Fulton Street, San Francisco.

The McNaul Tire Co. of California has opened salesrooms at 500 Van Ness Avenue, San Francisco.

W. E. Strel Co. has moved its accessory store to 2305 Broadway, Oakland.

L. C. Sleep has opened a tire store and vulcanizing plant at 5540 College Avenue, Oakland, under the style Rockridge Tire Co.

Arbuthnot's Tire Shop has opened a vulcanizing plant at 168 Twelfth Street, Oakland.

The Toliver Tube & Tire Co. has opened salesrooms at 2551 Broadway, Oakland.

H. A. Adams has become sole owner of the Steam Vulcanizing Works, 4191 Broadway, Oakland.

Kelly's Tire Shop has opened salesrooms at MacDonald Avenue, Richmond, Cal.

The Power Rubber Co. of San Francisco has opened a branch at 1213 I Street, Fresno, Cal.

J. A. P. Henderson has sold his interest in the Highway Garage, Bellingham, Cal.

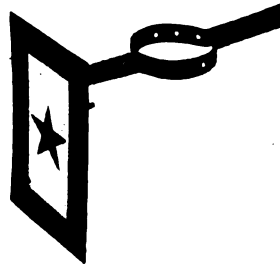
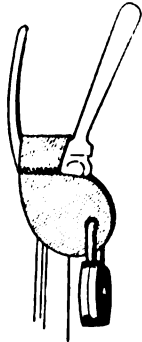
New Garages

L. & M. Co. Sacramento
 J. K. Barnett Modesto, Cal.

Accessories

SAFETY BRAKE LEVER LOCK

With this lock the emergency brake lever on a Ford can be locked in any position with the brakes on or off; hence the car can be moved by hand even when the lock is in place. The lock slips in place readily. Price complete with a good padlock, \$1.50.—A. P. Worthington, 700 North Main Street, Los Angeles.



mile trip register. Price \$15.—Stewart - Warner Speedometer Corp., Chicago.

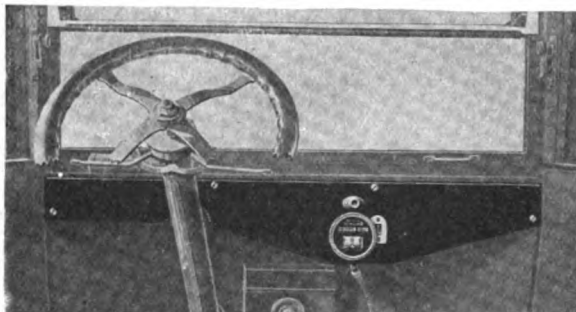
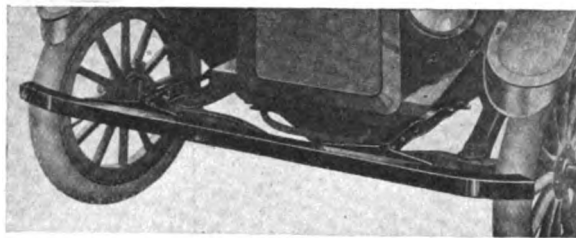
DECORATIVE SERVICE FLAGS

These are made of enameled metal and may be attached either to the radiator filler, the radiator or either of the license plates. They are finished in three colors and are practically indestructible. All designs are made with one, two or three stars.—V. B. Crook & Co., Inc., 549 Fifth Avenue, New York.



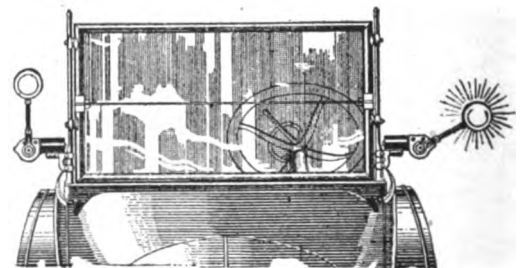
PINES AUTOMATIC RADIATOR SHIELD

An automatic adjustable shield, consisting of a series of shutters, adaptable to any radiator having a flat front. It is operated by a thermostat actuated by the temperature of the water in the radiator. The shutters remain normally closed and are opened when the water reaches a temperature of 130 deg., remaining open until it falls below that point. The shield is made of aluminum, operates noiselessly and can be attached or detached in one minute with no tool but a screw driver. Price \$22.50.—Pines Mfg. Co., Chicago.



NATIONAL SAFETY SIGNAL

Two semaphores attach one to each side of the car, whether open, closed or electric. The signal at the right is green and that at the left is red. Both signals are controlled by a single button, which causes either signal to drop and become illuminated and to return to its upright position.—National Auto Signal Co., St. Paul, Minn.

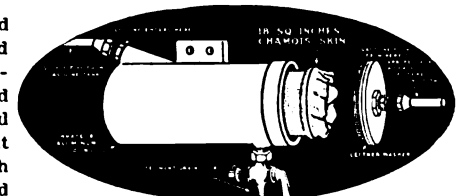


STEWART CHEVROLET AUTOGUARD

The Autoguard or channel bar is made of high carbon steel and is furnished in two finishes, bright black enamel or polished nickel. The full elliptic springs are high carbon spring steel. They extend out toward the end of the channel bar to insure uniform strength and springiness for the whole length of the bar. The brackets are made with a slot which fits around the fender bracket of the car and to make installation it is only necessary to remove two screws that hold the fender bracket to the frame, put on the bracket and replace the screws with two longer ones. A hook bolt engages the lower flange of the car frame channel for additional security. Price, black enamel \$7.50; Western price, \$8.25; nickel plated, \$8.50; Western price, \$9.25.—Stewart-Warner Speedometer Corp., Chicago.

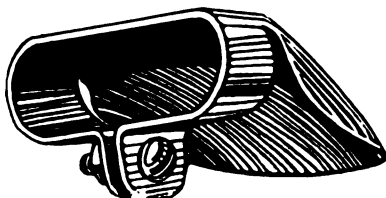
STEWART INSTRUMENT BOARD

This instrument board is for Ford closed cars and is installed without cutting or fitting. Four wood screws hold the board and the speedometer is brought into a position from which it can be easily seen and read. The board is wood with a black eggshell finish. The speedometer is mounted flush and is set off with a flush nickel bezel. A headlight switch, starter control, clock, priming device or any other accessories can also be placed on the board. A hooded electric light is installed complete with wiring, ready to be connected with the Ford lighting system. The speedometer furnished with this outfit is of the regular Stewart magnetic type. The instrument has a 60-mile speed dial; has 100,000-mile season register and 100-



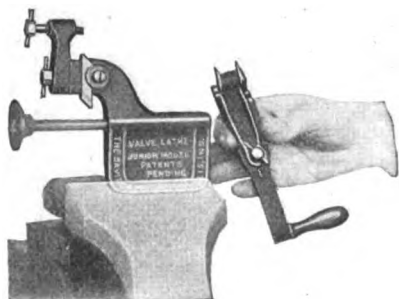
COLUMBIA GASOLINE FILTER

The essential feature of this gasoline or kerosene filter is a screen presenting 18 sq. in. of chamols surface through which the fuel must pass and which catches all dirt, sediment and water that may have found its way into the fuel. The filter can be installed on any car without special tools, all necessary attachments being supplied. Price \$7.50.—Columbia Gasoline Filter Co., 28 Kingston Street, Boston.



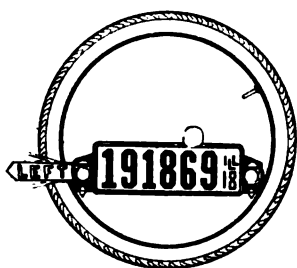
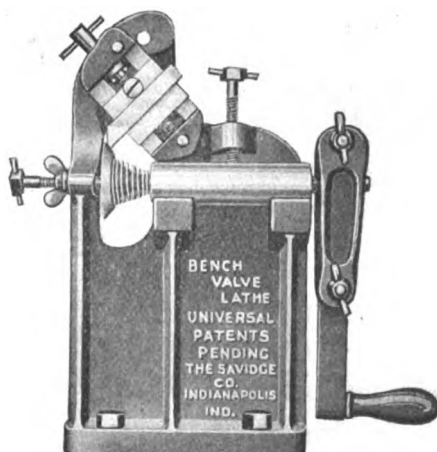
FORD EXHAUST DEFLECTOR

This deflector is stamped from heavy steel and fits the exhaust pipe of the 1918 model Ford, deflecting the exhaust and quieting it. They are packed 1 gross in a box and sell for 25 cents each.—A. P. Worthington, 700 North Main Street, Los Angeles.



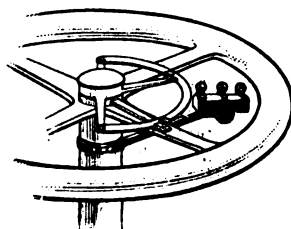
UNIVERSAL VALVE LATHE

Any size valve head may be trued quickly and easily with this bench lathe. Two steel sleeves, one for 5/16 in. stems and the other for 3/8 in. stems, are furnished, and these will fit 90 per cent of the valves used on popular cars. Additional sleeves for odd sizes can be obtained. Each lathe is supplied with a high-speed steel cutter properly ground. Price of the lathe complete is \$10; extra sleeves and cutters are 75 cents each. A Junior lathe is made especially for Ford valves and is equipped with a high-speed steel cutter. Price complete, \$5.—Savidge Co., Indianapolis.



MOORE SIGNAL

The Moore signal is electrical-ly operated and attaches to the rear license bracket. A bracket carrying three buttons fastens to the steering column and the buttons control three sema-phores, one for right, one for left and one for stop. As either semaphore is operated, a red light at that side is switched on and the semaphore is illu-minated by a white light. At the same time an electric bell rings for a brief second as an additional warning. The sema-phores automatically return to their hidden position when the buttons are released.—Moore Signal & Mfg. Co., 3300 Jackson Boulevard, Chicago.



BADGER SLIP ROOFS

Slip roof outfits are made for every make and style of car and consist of a complete new cover for the top in Ford rubber, genuine mohair, F. S. Carr's Never-leak or domestic mohair. The tops are correctly patterned and strongly sewed; all necessary parts come with them. They can be attached by any one. Back curtains can be supplied with Johnston's plate glass win-dows if desired. Prices vary according to material and size of top and fittings.—Wisconsin Auto Top Co., Racine.

ADAMSON DRY FUEL VUL-CANIZER

The new Adamson Model E vulcanizing outfit employs dry fuel in powdered form and is used for repairing tube punctures. A measuring cup of the fuel is poured into the receptacle and when ignited burns with a hot glow but without flame. When the glow disappears the repair is complete. The outfit includes the vulcanizer, can of fuel, box of 12 patches, measur-ing cup, sandpaper and direc-tions. Price \$1. Extra box of 12 patches, 25 cents; extra can of fuel, 50 cents.—Adamson Mfg. Co., East Palestine, O.

G. T. L. PUSH AND PULL RIM TOOL

A tool for removing and replac-ing any size of split rim by one stroke of a lever. A sliding bar travels in an E-shaped channel and is adjusted by a thumb screw. The slot in the connect-ing link allows the adjusting bar to move backward to admit the tool inside the rim. It also per-mits a forward movement of the bar for attaching the hooks to the outside of the rim. A push or pull of the lever, as the case may be, forces the rim in place, or pulls it away from the tire. The tool is made in four fin-ishes, plain, japanned, bronze and nickel. It is furnished in two sizes, No. 1 for tires from 30 to 36 in. and No. 2 from 36 to 42 in. Price, \$3.50 to \$4.75.—Metal Products Mfg. Co., Minne-apolis, Minn.

MILES SHOP EQUIPMENT

A number of shop tools espe-cially for use in Ford overhaul and repair work are manufac-tured. No. 4 bench plate will hold the cylinder block and transmission and lists at \$15 without the bench; No. 5 bench

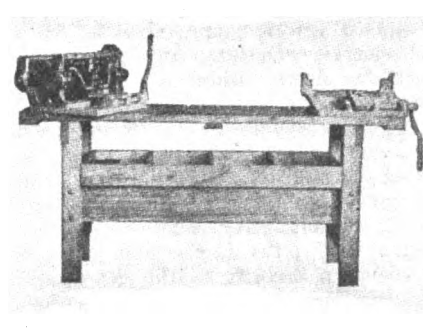
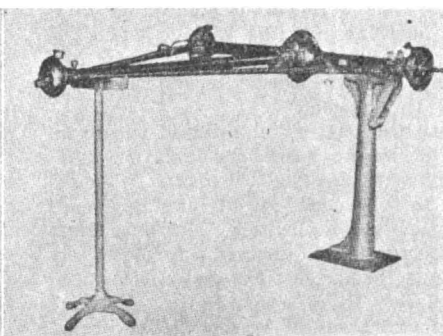
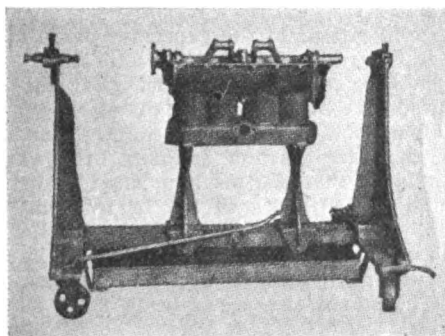
plate holds the block horizontal and may be used on narrow or wide benches; price \$18. No. 5M is similar to No. 5, but has a swivel; the price is the same. An engine stand will hold the engine and transmission to-gether in any position or may be used for the engine alone in

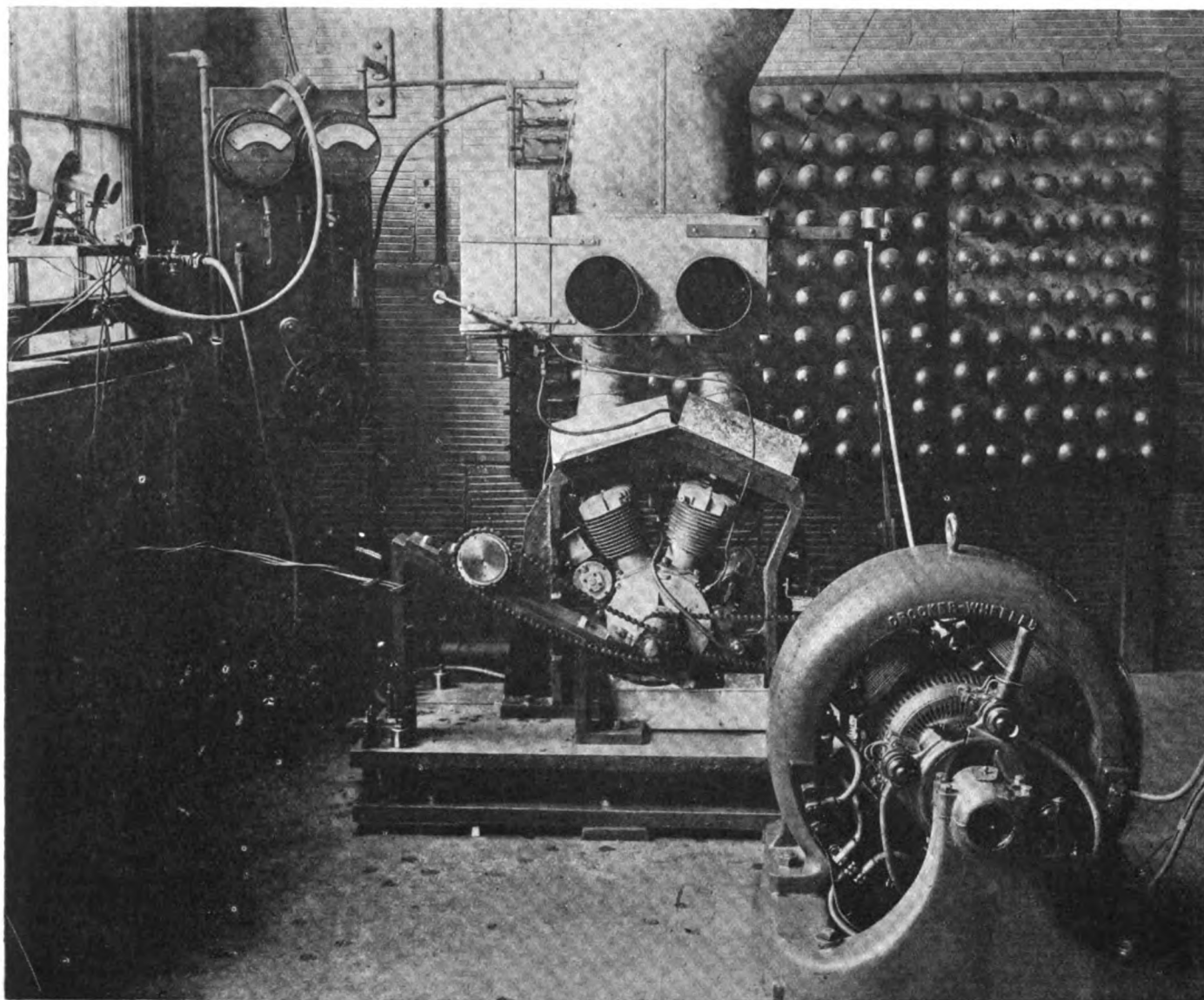
any position; price \$35. A rear axle stand holds the complete assembly and lists at \$15.—E. J. Miles & Co., Newton, Ia.

FIRST AID TIRE KIT

These are made in three sizes

and include the necessary patch-ing rubber and cement for re-paring tires and tubes and any other rubber accessories. No. 1 size lists at \$1; No. 2 at 75 cents, and No. 3 at 50 cents.—General Tire & Rubber Co., Akron.





When it was decided to eliminate the battery as a source of current for lighting the new U. S. A. Liberty motorcycle, elaborate tests of four different types of generators were made. This shows the testing equipment

No Battery In New U. S. A. Motorcycle

Will Employ Magneto Ignition and Small Electric Generator for Lighting—Problem of Maintaining Constant Voltage Complicated—Four Types of Generators Tested

IN the development of the U. S. A. motorcycle it was decided to employ magneto ignition and also to fit a small electric generator for generating current for electric lighting. No storage battery is to be used, as it was feared that the motorcycle riders in the field would not be in position to give the necessary attention to the battery and that under these conditions a battery would inevitably give trouble.

Consequently, the lights will have to be hooked up directly to the generator. Heretofore in practically all automotive electric lighting systems a storage bat-

tery has been floated on the line; such a battery has a powerful steadying influence, boosting the line voltage when the generator drops below normal speed and pulling it down when the generator exceeds this speed.

With the battery eliminated the problem of maintaining the voltage sufficiently constant as to insure a tolerably uniform light at all engine speeds is seriously complicated. Not only must the voltage be maintained approximately constant throughout the generator speed range, but there must be no excessive flicker which might be due to the action

of the voltage regulating or control device.

Specifications of the generator desired were drawn up by the Military Motorcycle Standardization Board and submitted to manufacturers of electrical equipment throughout the country during the latter part of January. It was stipulated that the machine must be of round section, not over 3½ in. in diameter. It was to be clamped to a saddle cast on the crankcase, telescope into the driving gear housing and bolt against this by means of three ¼-in. 28 S. A. E. screws.

The generator was to be driven at twice crankshaft speed, was to supply current to one 15-c.p. headlamp, one 2-c.p. taillamp and one 2-c.p. side-car lamp, and its voltage must be maintained so that lamps would not blow under any circumstances. A reasonable amount of light must be given at 500 r.p.m. engine speed. Shaft and dimensions were also specified.

Four manufacturers of electrical equipment submitted generators for tests and had representatives on the scene when these tests were made. We will designate the four machines by the letters, A, B, C and D.

Control by Voltage Regulator

Generator A is 3 7/32 in. in diameter and weighs about 6 lb., including its control mechanism, which is inclosed within the generator housing. Control is by a regular voltage regulator, comprising a magnetic vibrator, shunt coil for operating this and a field resistance which is cut in and out by the vibrator. This regulator operates in conjunction with a third brush system. The regulator resistance is located at the commutator end of the generator under the cover. As all of the regulating devices are inside the generator and the latter is wound for a ground return wiring system, there is only a simple binding post or terminal on the outside.

A somewhat different control system is used on generator B, which is 3 7/16 in. in diameter, 6 1/4 in. in length over all and weighs 7 1/4 lb. Like type A, it is of bi-polar construction. The regulating mechanism comprises a vibrator with two contact points. One of these contact points is vibrated by means of a cam, or rather an eccentric on the end of the armature shaft, while the other contact point is drawn away from the vibrating one by an electro-magnet energized by a coil connected across the armature. The higher the voltage generated the more the contacts are kept apart by the electromagnet and the less the field resistance is cut out. High speed of the cam also tends to reduce the time of contact and thus to keep down the voltage. This regulator is mounted on the end plate at the commutator end.

Has Double Vibrator

Generator C has a straight voltage control. However, the control resistance in the field circuit is divided into two parts and there is a double vibrator, so arranged that when it is actuated moderately only one contact set will open and one part of the resistance be cut into the field circuit, whereas if the actuation of the vibrator is more energetic both contact sets will open and the whole of the resistance will be cut into the field circuit. This generator is of four pole construction with series armature winding so arranged that the two brushes come on top of the commutator. The machine is 3 3/4 in. in diameter and weighs approximately 10 lb. with regulator.

Generator D is 3 7/16 in. in diameter and weighs 9.8 lb. It is of four-polar construction with series-wound arma-



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ture, one brush being at the side and the other at the bottom. The regulator is of the usual vibrator type and is located in a circular housing on top of the generator, which can readily be removed if desired. As all of the screws holding the end plates in place are lead-sealed, the generator cannot be tampered with. The armature is coil wound and impregnated with Bakelite.

Generators Have Ball Bearings

All of the generators are fitted with ball bearings. All were successively installed on a U. S. A. cycle motor, connected to a load consisting, first, of one 12-c.p. headlamp and a 2-c.p. taillamp, then of one headlamp and one taillamp and finally of one taillamp only, and the engine with each of these loads was run at various speeds from 500 to 3600 r.p.m.. At each speed ammeter readings were taken and the character of the light given out by the headlamp was noted. The ammeter hand would not stand steady but swing more or less and the extreme points reached in its swings were noted.

It may be pointed out that these tests will not be the sole basis for selecting one or more types of generator for use on Liberty motorcycles, but are preliminary to extended road tests. The object was to test the generators on the engine to which they are to be fitted throughout the whole speed range and bring to the attention of the makers at the earliest possible moment any possible defects in design, so that these might be remedied before the final tests are begun. It was realized that the design of a variable speed, variable load, constant voltage generator is a comparatively new problem and that perfection would not be attained immediately. The results shown by the tests are, however, quite encouraging and there is no doubt that a thoroughly practical outfit will be secured.

The results of the tests are given in the accompanying tables and curves. In plotting the curves the mean of any pair of voltage readings was taken. On full load very good results were obtained with three of the generators—A, B and C. Generator D, with plain vibrator voltage control, gave a rapidly increasing voltage above 2400 r.p.m. engine speed. The reason is believed to be that from about this speed the vibrator keeps the field re-

A GENERATOR—VOLTAGE READINGS

Engine	LOAD		
R.P.M.	15+2+2 C.P.	15+2 C.P.	2 C.P.
500	3.0—3.6	3.5—4.0	4.4—4.8
600	3.4—4.0	4.2—5.0	4.9—5.5
800	4.7—5.3	4.8—5.6	5.5—6.1
1000	4.9—5.4	5.0—6.0	5.7—6.2
1500	4.5—5.5	5.0—6.0	6.3—6.6
1800	4.4—5.0	4.8—5.6	6.8—7.1
2000	4.4—5.2	4.7—5.5	7.8—8.2
2200	4.3—4.9	4.5—5.5	15.5
2400	4.3—4.9	4.9—5.5	Burned out
2800	4.5—4.8		
3000	4.7—4.9		
3200	4.2—4.6		
3400	3.4—3.7		
3600	3.2—3.5		

C GENERATOR—VOLTAGE READINGS

Engine	LOAD		
R.P.M.	15+2+2 C.P.	15+2 C.P.	2 C.P.
500	5.7—4.0	5.7—4.0	5.7—4.5
600	5.7—4.5	5.8—4.0	5.8—4.8
800	5.7—4.5	5.8—4.0	5.8—4.8
1000	5.7—4.5	5.7—4.4	5.7—5.0
1500	5.7—5.0	5.7—5.0	6.0—5.8
1800	5.8—5.3	5.7—5.4	6.1—6.3
2000	5.8—5.3	5.4—6.0	6.2—6.4
2200	5.3—5.8	5.7—6.1	6.3—6.5
2400	5.2—5.7	5.3—5.8	6.3—6.6
2800	5.0—5.7	4.7—5.6	6.0—6.6
3000	5.0—5.7	4.4—5.4	5.9—6.7
3200	5.0—5.7	4.3—5.4	5.8—6.7
3400	4.5—5.5	4.0—5.3	5.8—6.8
3600	4.2—5.3		

D GENERATOR—VOLTAGE READINGS

Engine	LOAD		
R.P.M.	15+2+2 C.P.	15+2 C.P.	2 C.P.
500	2.5—4.5	2.5—4.0	3.0—4.3
600	3.0—4.5	3.0—4.5	2.3—4.5
800	3.0—4.5	2.5—4.5	3.5—4.6
1000	3.5—4.5	3.0—4.5	3.5—4.7
1500	4.2—4.8	4.0—4.8	4.7—5.8
1800	4.5—5.3	4.7—5.8	6.0—7.2
2000	4.8—5.5	5.0—6.5	7.5—7.5
2200	5.2—6.0	6.0—7.8	10.7—11.1
2400	6.2—6.7	7.5—9.3	Blew
2800	9.0—10.0		
3000	13.0—14.0		
3200	Lamp out		

B GENERATOR—VOLTAGE READINGS

Engine	LOAD			No.
R.P.M.	15+2+2 C.P.	15+2 C.P.	2 C.P.	Lamps*
600	4.2—4.1	3.9—4.1	4.9—5.1	4.7—4.8
800	5.0—5.2	5.8—6.2	6.0—6.5	6.0—6.5
1000	5.8—6.5	6.1—6.6	6.0—6.7	6.7—7.0
1500	6.4—6.6	6.4—6.8	6.5—6.9	6.8—7.1
1800	6.6—6.8	6.7—7.0	6.9—7.1	7.0—7.3
2000	6.7—6.9	6.8—7.1	6.9—7.2	7.2—7.4
2200	6.7—7.0	6.9—7.2	7.0—7.2	7.2—7.5
2400	6.8—7.1	7.0—7.2	7.1—7.3	7.2—7.5
2800	6.8—7.1	7.0—7.2	7.2—7.3	7.3—7.5
3000	6.9—7.2	7.2—7.4	7.3—7.5	7.7—7.7
3200	7.4—7.7	7.4—7.6	7.7—7.9	8.2—8.2
3400	8.0—8.3	7.8—8.0	9.0—9.2	9.5—9.5
3600	9.0—9.3	9.0—9.2	10.0—10.5	10.5—10.8

*This series of observations was taken specially at the request of the maker's representative.

sistance in circuit all the time so that the voltage rises with the speed.

Generators B and C also showed up well on the slightly reduced load—headlamp and one taillamp. The voltage of generator A dropped away rapidly from about 2000 r.p.m. engine speed on.

When loaded with only a single taillamp, generators B and C again maintained their voltage quite well throughout practically the whole range of engine speed. At the upper end of this range both increased considerably in voltage, that of generator C reaching 10 volts at 3600 engine r.p.m. This speed would never be attained by the engine in riding, so that this sharp rise in voltage, which is further contingent upon only a single 2-c.p. lamp being in circuit, is of little importance.

The voltage of generator A when applying only one taillamp takes a sharp upward turn at about 2000 r.p.m. engine

speed, and this speed could not be much exceeded without burning out the filament. The same trouble occurred with generator D. In the case of generator A, the probable reason is that since its control is based in part on the constant current principle (third brush regulation) when the lamp load is greatly decreased too much current will flow. Generator D probably has too small a field resistance.

The above observations relate to the variation of the voltage with engine speed and generator load. Preferably this variation should be nil, but in practice such a result is unattainable. Too low a voltage, of course, means a dim light, while too high a voltage means the burning out of bulbs.

Besides the gradual variations in voltage due to variations in engine speed there are rapid variations which may result from the action of the voltage regulator or from engine vibration. Such

rapid fluctuations in voltage result in a flicker or in periodic variations in the intensity of the light which under certain circumstances may be quite annoying. As the test runs with full lamp load were made, an observer noted the character of the light given out by the headlamp, and in the diagrams the character of the light is denoted by symbols which are really self-explanatory.

As will be seen from the illustrations, the tests were made on a test stand, the engine driving through a chain to a jackshaft to which an electric generator could be connected by a friction clutch.

In connection with the set of tables marked D it should be pointed out that the regulator of this type generator was disabled as soon as the tests started and the representative then secured a shock regulator as used by the manufacturer on automobile equipments. The result was that regulation was unsatisfactory.

The Locked Door

(Continued from page 16)

with about 99 per cent of the human race is that they get that far and *they don't go any farther.*

"What you need is a little action and the only one who can produce that action is yourself. You are the manager of your business. If you don't manage it there is no one except yourself to blame for the things that don't happen—and that do happen.

"Let's take this case of the broken windows in your building. I know you've got some, because I've seen them. You just told me yourself that you went around and looked at the building and discovered that there were some broken windows there. What sense was there in that? The last time you were down here I told you that there were some broken windows and you didn't have to walk around the building to see whether or not I was telling you the truth. I don't think I ever lied to you very much yet.

"But what did you do? You simply walked around and looked at them and you didn't even find out what the sizes of them were so you could order some glass.

"When you were here before I told you to go around and find out the sizes of the windows, not merely stand around and look at the walls. Instead you merely walked around and looked at them and *you didn't do anything.* That's not action. Action would consist of climbing up or sending a man up to measure these windows. The next step would be to order the glass.

"Then there is your accessory display cabinet. I told you to put one in and you said you were going to do it. You have the thing half way planned out here, but *you haven't done anything about it.*

"You walked around the building and found the place where the thing ought to go, but you didn't even measure up the size of it. You haven't even got a rough idea in your head as to what the

thing ought to look like when it is done. The result is that you have no action and no result and until you do get some action into this proposition you aren't going to have any results except the kind that aren't worth anything to you.

"Then there is this question of a prospect list for the cars and the trucks. You could sit down offhand and make up a list of quite a lot of farmers who have farms big enough to use trucks and who really need them in their business, but you merely thought about it and what you thought you've got in your head—if it hasn't slipped away from you entirely—and you haven't put a single name down on a card and put it in the file. I tell you, Miller, you've got to put some action into this thing or you're going to come through 1918 with a mighty slim year.

"It's the same with salesmen. Lots of them know they could make more calls a day and could make their sales work more profitable if they did certain things—*most of which they already know about*—but the trouble is there is no action injected into the thing and so *nothing is done.*

"Now, I'll tell you what to do. You go back home, find out the sizes of those windows, order the glass and get those windows fixed. Then measure up the size of the place where you need to put your display case, call on a carpenter and tell him to build the thing. Get one or two of these things started and maybe that will get you into the habit of starting some of these other things. The important thing is that you get started doing something, because if you don't start you'll never get anywhere.

"That territory of yours down there is full of gold. All it needs is for you to go out and get it, but as you are situated now the gold is behind a locked door. You have your key in your hand, but you are simply sitting there looking at the door and you don't unlock it. It's the

easiest thing in the world to do—but *the principal thing is to start.*"

Sixth Annual Meeting of Montreal Automobile Association

MONTREAL, March 21—The sixth annual meeting of the stockholders of the Montreal Automobile Trade Association was held in the Windsor Hotel and forty-four were present. The following were elected board of directors for the coming year: J. O. Linteau, Legare Automobile Co.; J. E. Millen, John Millen & Son; N. J. E. Catudal, McLaughlin Motor Co.; J. R. Marlow, Willys-Overland Co.; W. E. Baker, Frigon & Baker; R. A. Kelly, Paige Motor Co.; C. Gareau, Grant Distributing Co. At a meeting of the board of directors held later the following officers were elected: President, J. O. Linteau; vice-president, J. E. Millen; treasurer, N. J. E. Catudal; secretary, J. R. Markow; directors, W. E. Baker, C. Gareau and A. R. Kelly.

Various committees were formed and the association will very closely watch the interests of all concerned during the coming season.

Bay City Considers Show

BAY CITY, MICH., March 21—The Bay City Automobile and Accessories Dealers' Association held a meeting Friday at which the matter of holding the annual automobile show this year was taken up and a committee consisting of three is now considering the proposition.

Production Begun on New Reo Four

LANSING, March 21—The Reo Motor Car Co. has started production on its new four and expects to be in full production within 3 weeks when it will make seventy-five daily. Due to the heavy rains and poor roads, driveaways from the plant have been reduced over 50 per cent.

Women in Gasoline Stations

WOMEN are fulfilling the duties of men in gasoline filling stations as well as in other branches of motor life. The Sinclair Refining Co., Chicago, is employing about fifteen girls at the present time in this city throughout its various gasoline stations. The scarcity of men prompted the company to try the experiment, which thus far has revealed some interesting facts.

The Sinclair company's statistics show that the girls are just as much on the job as the men, and in a number of instances even more so. For instance, in one station that opens at 6 o'clock in the morning, the figures show the young woman in charge unlock the doors day after day anywhere from 5 to 20 min. or more ahead of time, while with some men the time of opening runs sometimes as much as an hour late. The reason advanced is that the men in the majority of instances have more outside interests than women, keep later hours, etc.

Women Prove Capable

When it comes to selling gasoline, making change and other incidentals, the women are fully as capable as the men, but when it comes to advising an owner as to the grade of oil he should use in his particular engine, the women have been found to lack certain mechanical knowledge which is necessary for the best efficiency. Some car owners complain that they prefer men in this particular service, because they dislike seeing a woman struggling with an obstinate tank cap and frequently are obliged to render assistance. The company maintained a school for its men employees for some time and hopes to revive it for the girls so they may be in better position to locate readily the oil filler cap on an engine or advise the owner in regards to his needs.

Fisher Starter for Fords

(Continued from page 21)

When the generator is driven ammeter will show current on the charge side.

Stop the engine and turn on the lights and ammeter will show current on discharge side, if connections are right.

With each battery is packed instructions for its care, which, if followed, will add to its life and service.

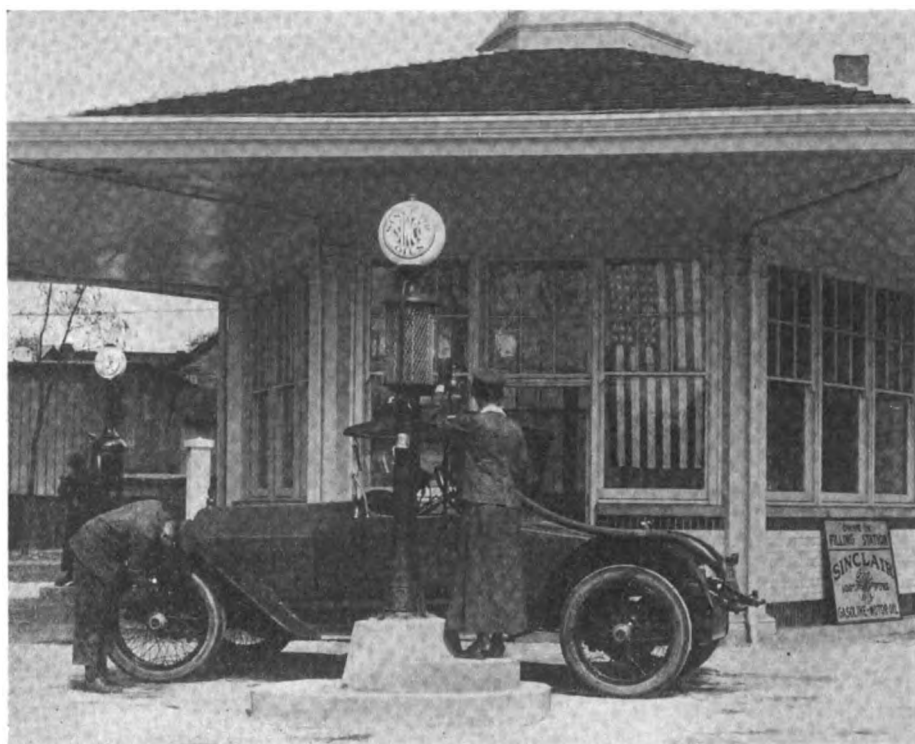
With each equipment is furnished a wire with a loop and a lever for connecting the priming valve for operation from dash as shown on Fig. 2. Marked No. 102FB45, No. 102FB46, No. 102FB47.

Six-volt tungsten bulbs are used for the head lamps and 1/2-volt bulbs for speedometer side, dash and tail lamps.

When first installed starter chain must be tightened after car has been driven two days, again tighten after being driven one week.

Chain should be examined and tested by slight pressure between thumb and finger every week thereafter.

Driving starter with a loose chain is dangerous and must be avoided.



The Sinclair Refining Co., Chicago, is replacing men with women attendants and they are proving quite successful. Note the neat uniform that is supplied

Lubricate chain with heavy engine oil or transmission grease every week.

About once a week put three drops of oil in the small holes of the upper and lower bearing on the commutator end of the lighting and starting unit.

Sold a Car an Hour During Show

A YEAR ago the McLuney Auto Co., Utica, selling the Studebaker, advertised that it would sell a car an hour during the show. It figured ten hours a day and advertised that it was going to sell sixty cars during the week. By considerable preliminary planning and work among the thirty country dealers and a large number of prospects in town, the dealer sold fifty-nine cars to within a half an hour of closing time the last night.

By strenuous efforts he was able to get the additional sale, making sixty, and his efforts were so great that at the same time the last sale became two instead of one, making sixty-one cars. In Utica they speak of McLuney as "A Car an Hour McLuney."

Ten Per Cent for Selling Used Cars

THE H. W. Skinner Motor Car Co., Utica, charges 10 per cent for selling used cars. It does not take any cars in trade. The 10 per cent is rebated to the man if he buys a new car in 30 days. If he doesn't buy a new car and decides to let the deal stand as it is, the dealer is amply compensated for the trouble to which he has gone in disposing of the old car. The arrangement is said to be highly satisfactory.

Tremendous Impetus Gained by Industry

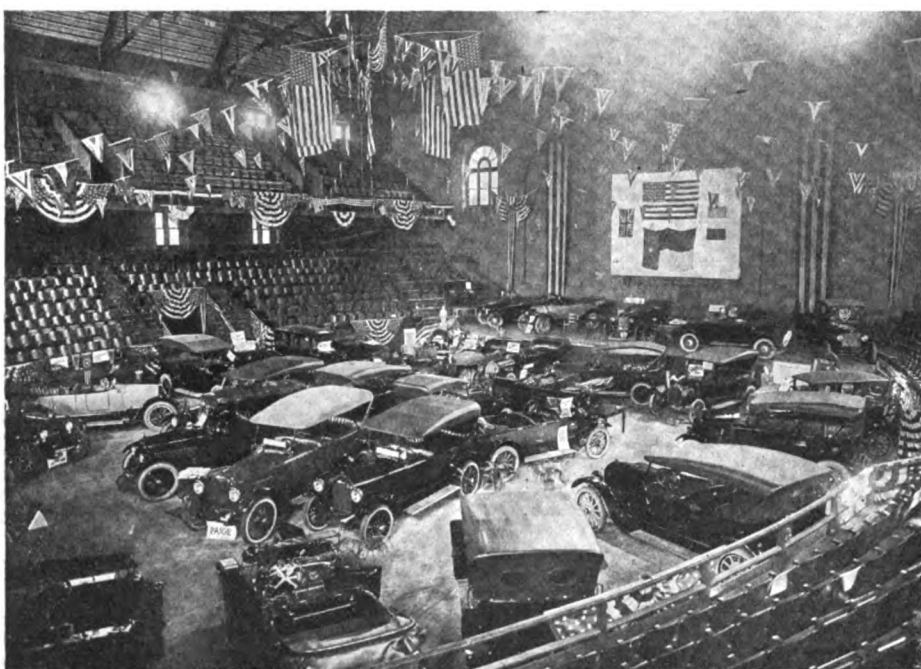
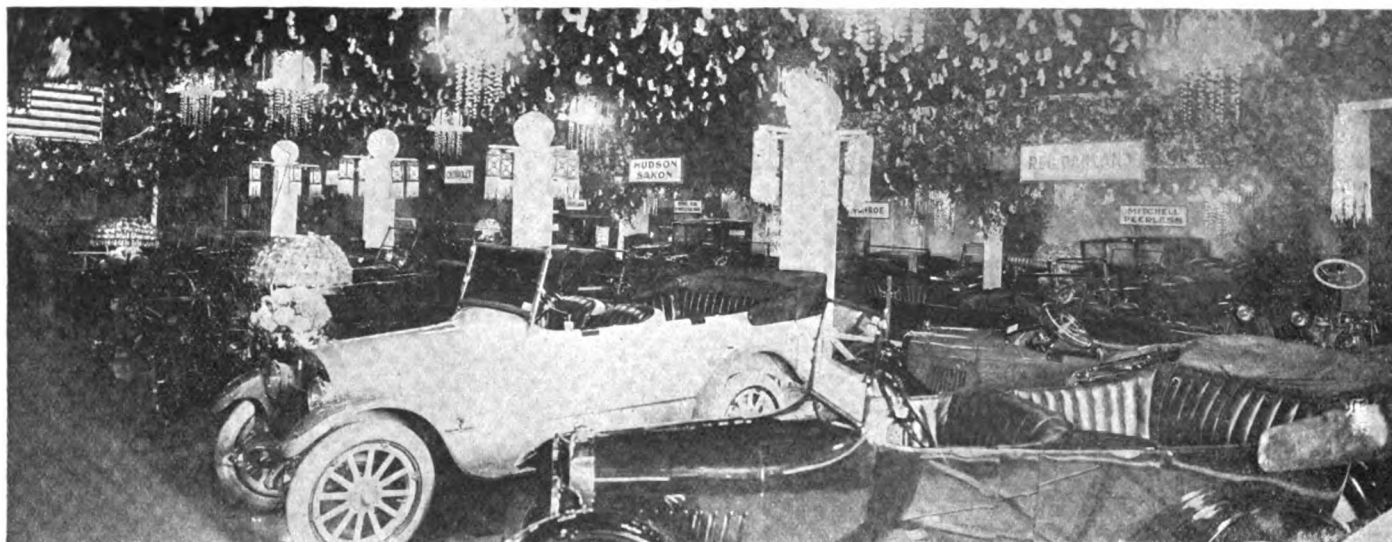
CLEVELAND, March 21—"If the war should stop to-day, the activities in industry and business now going forward so rapidly would not be arrested for many years." This was the statement made by Christian Girl, president of the Standard Parts Co., to the sales representatives of that company at a meeting here recently.

In spite of any reports to the contrary, Girl declared that the activities at Washington were progressing with amazing speed and that the 2000 per cent increase in business which the government has been called upon to carry out is being accomplished with dispatch.

At the meeting it was announced that W. E. Perrine, now production manager, is to be made assistant general manager, still having in charge the production, and in the absence of Girl, chairman of the Executive Board of Control. Early reports indicate that the first year's business will show \$25,000,000 in gross sales. This is a higher mark than the company had set for the first year.

Want Automotive Engineers

WASHINGTON, March 21—The United States Civil Service Commission announces open competitive examinations, applications for which will be received in the near future for an automotive engineer Quartermaster Corps, automotive body designer Quartermaster Corps, and an automotive draftsman Quartermaster Corps. Full information and application blank may be obtained by addressing the United States Civil Service Commission.



Views of 3 Shows

HERE are pictures of three shows. At the top of the page is the show in Cedar Rapids, Iowa. The dealers there hadn't had a show in several years because the couldn't-be-doners got away with their propaganda. But this year the trade decided it could be done and did it. And not only was there a good show but there was a fine big trade booster meeting as well.

At the center is the show in Raleigh, S. C. It had all sorts of war features and the usual line-up of cars. It was a good show even if the seats in the Auditorium do look rather empty in the pictures. But pictures don't always tell the story in the best way.

The lower picture is that of the Utica show. It was held in an armory. There wasn't as much room as some of the dealers wanted but they went in just the same and showed the little old "pent up town" that the motor car industry is still here. Here also there was a trade meeting.



GEORGE H. BIRD

Who has just been made president of the Chicago Automobile Trade Association. When not bowed down under the burdens of this office he helps the Bird-Sykes Co. scatter Paiges around Illinois



Camouflage

To Sell
Used
Cars

Camouflage :

The art of making
something appear
what it is not—

From the French



WHEN the Worcester, Mass., plant of the Studebaker Corp. wishes to put over used car sales it uses a camouflage automobile stunt that was originated by F. G. Parker, manager of the Used Car Department. It was designed to impress upon prospects the reliability and unreliability in used cars.

To the center of the car was erected a partition made of two pieces of beaver board pasted together back to back. On the beaver board was painted a cloudy skyline which tapered off into a very light haze and fitted in well with the ordinary sky effect. A false wheel was put in on the side where there was no steering wheel and a driver sat on each side of the front seat, as shown in the head-on view.

One side of the car was covered with oil and mud splashed upon it. This represented the unreliable used car. The tires were in poor condition and everything was generally disreputable. The other side of the car was nicely washed and polished and showed how well a used car may be made to look.

Prospects were enabled to look at one side and then at the other and see what a little effort on the part of the dealer can do toward making a used car into a regular vehicle.

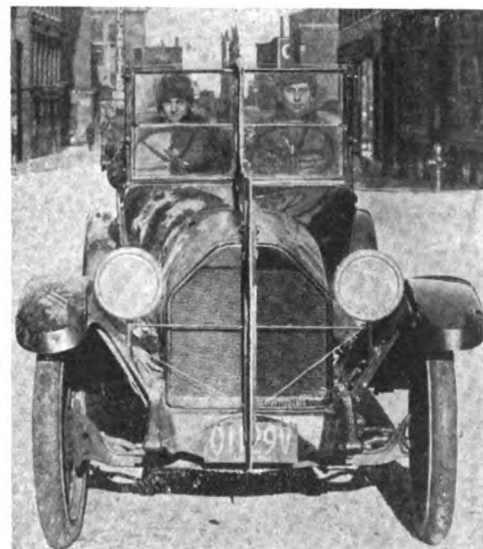
On the unreliable side of the car was a sign which said "It can't be done unless you go where they specialize on used cars of value. I'll leave it to you."

A sign in a similar position on the good side of the car showed a man knocking the "t" out of the "can't," which made the sign read, "It can be done at the Studebaker used car sale. I will

Above—The side of the camouflage car showing the unreliable side of it

Center—The reliable side of the camouflage car showing the type of vehicles that were on sale at the Studebaker salesroom

Right—A headon view of the car showing how it looks coming down the street toward a man. Wouldn't you rub your eyes if you saw a thing like this approaching you?



leave it to you." Whenever the car turned a corner both steering wheels worked, and some of the townspeople who may have been out the night before perhaps wondered whether they were seeing accurately or not.

Making Your Dealers Successful Men

(Continued from page 14)

Noyes has 125 dealers. He seldom makes a change, but if a dealer declines to accept assistance in becoming a money-making dealer there is only one course. The distributor realizes that frequent changes are not good practice and that the only way to get good dealers is to

make them. The world isn't going to turn over over night and bob up the next morning with a crop of 100 per cent merchandisers and business men. The new National army was made out of the material at hand. The distributor who wants better dealers must take what he has and make what he wants.

That's why he has been made a distributor.

Cadillac's Drive-away to Washington

DETROIT, March 21.—A driveaway of ten cars left the factory of the Cadillac Motor Car Co. yesterday bound for Washington, D. C., in charge of Cook & Stoddard, Cadillac distributors in that city.

New Kelsey Wheel Has Metal Felloe

Steel Stamping Used as Ferrule Connects Hickory Spoke with Steel Band—Two Types for Ford Size and Larger Wheels

THE Kelsey Wheel Co. of Detroit has brought out a wheel with a metal felloe band in place of the usual wood type. The advantage for this wheel, as claimed by the Kelsey company, is in the conservation of wood, which is difficult to obtain at the present time, and also a wheel which is equal in strength and resiliency to the usual wood type at a lower cost.

Up to this time the Kelsey company has used a wood felloe band construction with the connection between the spoke and the felloe reinforced by a flange clip. This fastening device, known as the "flanged over edge" type, has been used to strengthen the wood felloe and maintain the rigidity of the wheel. The substitution of the entire metal felloe gives a wheel for which the same service is claimed at a saving of half the wood required.

In the Kelsey construction steel felloe is used in an endless channel shape section, which is extensible and of a single piece. On each spoke is placed a stamped steel ferrule, which protects the spoke when going into the felloe, giving a weather-proof and check-proof joint. The wood spokes and ferrule are forced into the steel felloe under hydraulic pressure. They are turned true to size and mitred, both at the flange of the hub and arranged in staggered relation.

When glued the spokes are forced

under heavy pressure radially outward in a tenancing socket of the endless steel felloe by opposite pressure applied at the center of the wheel. This gives a high degree of tensioning and a permanent assemblage of the wheel.

Although bolts are used in the hub, these are not depended upon to hold the spokes in place, as the tensioning mentioned is more than sufficient to take care of this. Tests on the wheel show that on the 1½-in. spoke size corresponding to a tire size of 30 x 3½ in., ability has been shown to support a radial load of 2000 lbs.

The Kelsey company has so developed the felloe on this wheel that the No. 100 Kelsey rim, which is used as standard by many manufacturers, interchanges on the same wheel as the wood flanged over type construction. One of the particular points claimed by the Kelsey company is that a truer wheel can be made with the metal felloe and at the same time the resilient power of the wood wheel retained because of the wood spoke construction. The wheel not only conserves wood, but can be manufactured, it is stated, at a saving to the user.

Dealer Holds Tractor School

EASTON, MD., March 25—The Shanahan & Wrightson Hdw. Co., distributors of Avery tractors held a service school in



This poster can be secured at the Liberty Loan headquarters in any city where there is a Federal Reserve Bank. Get some posters and use them. It's an easy way to help. Ask other business men if they don't want some too

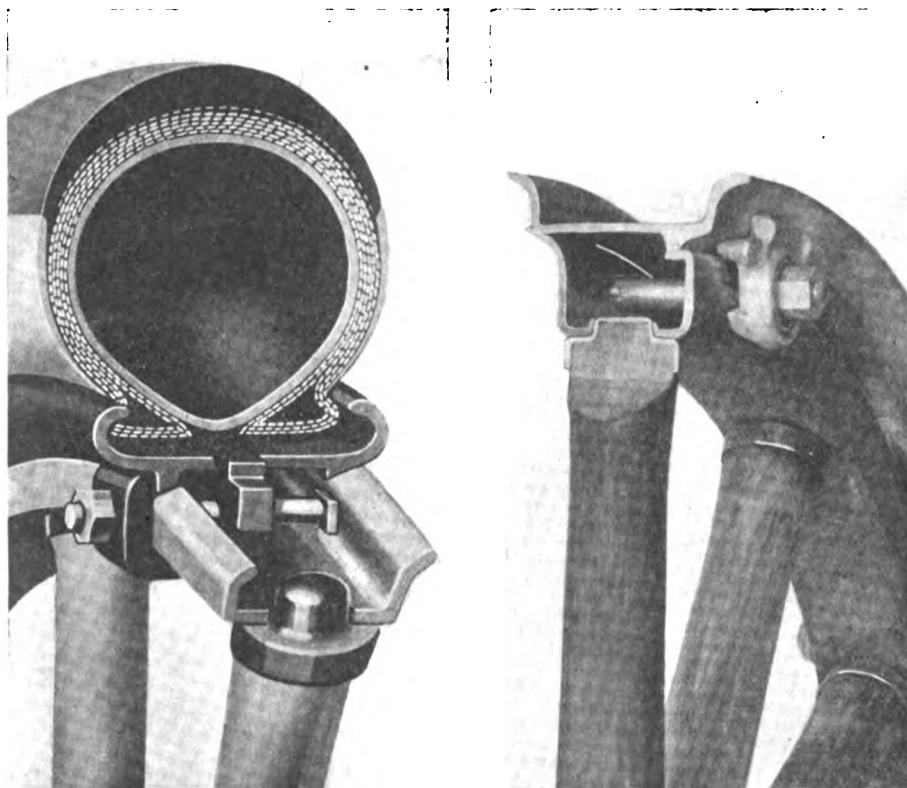
their building during two days recently. With the aid of lecturers and motion pictures, farmers and dealers were familiarized with the care, repair and maintenance of Avery tractors. One afternoon was devoted to power-driven farm implements.

Cleveland Dealers Meet

CLEVELAND, March 21—A big get together meeting of members of the Cleveland Automobile Trade Association and officials of the Ohio Automobile Trade Association was held at the Winton Hotel recently, which showed that there is strong enthusiasm for the state organization. The meeting was in the nature of a banquet. Talks were made by A. E. Mitzel, president of the Ohio Automobile Trade Association; Arthur M. Crumrine, who is acting manager; J. H. Henderson, of Youngstown and Andrew Auble of Akron. More than 60 individual memberships were secured at the meeting.

Would Sanction Illuminated Licenses

ALBANY, March 25.—Assemblyman McWhinney of New York has introduced a bill regarding lights, which was agreed upon at the recent conference of automobile officials and light manufacturers at Albany with Secretary of State Hugo. It adds a new subdivision to section 283 of the Highway law, authorizing the Secretary of State to approve any device submitted to him for transparently illuminating license plates on motor vehicles, if he is satisfied that it may be readily attached and is adequate to illumine the numerals so as to be visible at least 50 ft. Upon application any such approved plates may be issued in exchange for current number plates of ordinary type, upon payment of the charge for the device.



The new Kelsey wheel has a metal felloe instead of wood. The view at the left shows the construction for the 30 x 3½-in. size, the other for 32 x 3½-in. and over

Trenton Show Opens Selling Season

Factories Are Busy and Buyers Are Flocking Out to Motor Row—Truck Trade Looks Good

TRENTON, March 23—The Trenton show, which closed to-night, marks the beginning of what the dealers believe will be a good summer. The factories of Trenton, of which there are many, are prosperous and working to capacity and money is quite free in central New Jersey.

The dealers do not believe they will have any difficulty in selling all the cars they can get. They do, however, anticipate difficulty in getting them, and already dealers in practically all makes are driving cars from the factories. The warm weather of the last week or two has loosened up the buying situation and shopping along motor row has already begun.

Most of the truck dealers, practically all of whom also sell passenger cars, believe they are going to have a good season. John L. Brock, the Autocar dealer, at the time of a rise in price in February sold fourteen trucks. His entire Autocar business for 1917 was forty-six, so that February is therefore more than a third of his entire 1917 business.

The truck business is stimulated to a great extent also by the trains of trucks which pass through Trenton. Several companies are operating inter-city express services between New York, Philadelphia, Baltimore and Washington. They pass through this city sometimes without stopping. Each truck is covered by a top and canvas curtains which bear a sign telling the names of the cities between which it runs. Some of these stop here for gasoline and meals, and the possibilities of the truck have thereby been forcibly impressed upon the people of this city.

The farming section around Trenton is in good condition, and quite a number of out of town people were in to attend the show. One farmer came in at 1 o'clock in the afternoon and stayed until the show closed at night without going out for anything to eat, and he was back again the next day still shopping. He insisted he was going to buy a car, and the only question in his mind was whether he should spend \$1,000 or about \$1,300. Buyers are said to be just as keen as ever, also to be quite numerous.

This is Trenton's third annual show and is held in the Second Regiment Armory. It opened Wednesday evening at 7 o'clock and on the three following days opened at 1 o'clock. Admission was 25 cents. The attendance ran about the same as last year, 10,000. The gate receipts this year were donated to the Red Cross and to the Trenton Welfare Association, which means that each organization received about \$1,000 cash.

The expenses of the show were handled on a guarantee basis, dealers putting up just about enough per foot to cover the expenses of the exposition. There will be practically no rebate. This rebate is

not classed as part of the revenue that is turned over to the Red Cross.

Show decorating was done by Langgren Bros., Elizabeth, N. J., who also did the Philadelphia show. The decorations were pretty. In the center was an imitation of the Statue of Liberty, which made quite a hit with the show visitors. During the evenings the show was packed with the old-time crowds.

Practically no passes were issued this year. About 200 passes were given to people who permitted show cards to be put in their windows, but there were no newspaper passes and nothing in the way of the pass as it is generally known.

Trenton is midway between New York and Philadelphia and is hemmed in by both these large metropolitan territories.

The Trenton territory is limited to central New Jersey, and while business is good the wholesale sales cannot, of course, compare to those in centers which have larger exhibiting areas. The show committee consisted of John L. Brock, chairman; Arthur Perkins, Oliver O. Moore, Frederick Petry and L. L. Woodward. The show closed to-night with dancing. The cars were pushed back to make a little more room in the aisles, and the public danced from 11 until midnight. The list of exhibitors follows:

Brock's Garage, Inc., Buick, Cadillac and Autocar.

Crescent Auto Sales Co., Chevrolet.

Central Garage, Inc., Oakland and Paige.

Fitzgibbon & Crisp, Inc., bodies.

Lippincott Motor Co., G. M. C.

Robert C. Manning, Motor Shop, Dodge, Franklin.

Mercer Automobile Co., Mercer.

Nash Motor Co., Ford.

Gomery-Schwartz Motor Car Co., Hudson, Stewart.

Brooks & Virgin, Dort.

W. S. Johnston, Marmon, Selden.

Hyatt Auto Top Co., Maxwell.

William Weinman, Reo.

Higgins & Quinby, Davis.

Trenton Auto Sales Co., Hupmobile.

Packard Motor Co., Packard.

John I. Peoples, Vim, Saxon.

Petry Express Co., Service Motor Truck, National.

Robbins' Garage, Jordan Six.

Swain-Hickman Co., Republic Truck.

H. J. Stout & Son, Cole and Oldsmobile.

C. P. Weeden Motor Co., Studebaker.

West End Garage, Ford.

V. W. Willey, Liberty.

St. Louis Dealers Expand

ST. LOUIS, March 25—Instead of retrenchment on Motor Row there is increasing evidence of expansion.

The Tate-Gillham Motor Co., Dodge distributor, has just provided for 100 per



This poster can be secured at the Liberty Loan headquarters in any city where there is a Federal Reserve Bank. Get some posters and use them. It's an easy way to help. Ask other business men if they don't want some too

cent additional space by leasing an adjoining building. This company began in December, 1915, with space 70 x 135 on one floor. In October, 1916, it moved into a specially constructed building 75 x 135, two floors and basement. The new building has three floors of the same size. It will become a used-car salesroom, shop, new car inspection department, leaving the original building for new car salesrooms and offices.

The Missouri Auto Top Co. moved from 1917 Pine Street to 507-509 Channing, to double the workroom space.

The Eureka Auto Parts Co. moved to 1917 Pine Street to get double space.

Dallach Leads Quincy Dealers

QUINCY, ILL., March 25—At the annual meeting and banquet last week of the Quincy, Ill., Automobile Trades Association new officers were elected for the ensuing year as follows: President, A. C. Dallach; vice-president, F. R. Lusk; secretary, A. E. Brady; treasurer, John Clough. A social committee was named which will plan for a series of outings to be participated in by the entire membership and the families of the married men. These will consist of picnics and excursions to various resorts along the Mississippi River.

Muskegon-Indington Motor Line

KALAMAZOO, March 22—A complete motor line from Muskegon to Indington, both passenger and freight, by means of cars and trucks, has been planned. This is the result of the joint action of the federal government, officials of Grant, Shelby and Hart Townships and the councils of Montague and Whitehall, as well as the local chamber of commerce. Provisions for the immediate building of the regular government specification roads from Montague to New Era has already been made. The road to be covered by the motor line will be for the most part along the West Michigan Pike route.

Gray & Davis Pays Off All of Its Debts

Gets Out of Hands of Creditors' Committee After Year and a Half of Hard Work

BOSTON, March 25—Gray & Davis, Inc., which went into the hands of a creditors' committee Nov. 24, 1916, paid off its last claim Saturday and to-day is free and clear and doing a good business.

The total debts to banks and merchandise creditors when the committee was named amounted to \$2,550,000. It was paid in 12 equal payments. The period of payment covered only 16 months.

While the company is devoting a good part of its facilities to munitions work the starter and lamp business is still maintained and last year amounted to \$2,500,000.

Hippee-States Drops Retail

DES MOINES, March 26—The Hippee-States Co. has discontinued its retail jobbing business and has issued to its employees the following bulletin:

"For the purpose of conscientiously co-operating with our dealers and doing everything possible to assist them in making the sale and distribution of automobile supplies handled by us a profitable and permanent business, we have decided to discontinue our retail department to-day.

"Every time we make a sale in our store we actually rob some dealer of a profit to which he is justly entitled. Any concern engaged in the jobbing of automobile supplies to dealers certainly should discontinue the retail department for the dealer is entitled to such protection."

\$60 Increase on Crow-Elkhart Cars

ELKHART, IND., March 26—The Crow-Elkhart Motor Co. has increased the prices of its models \$60 as follows:

Model	Old Price	New Price
2-Pass. Roadster	\$935	\$995
5-Pass. Touring	935	995
De Luxe Roadster	995	1055
De Luxe Touring	995	1055

Chicago Used Car Show a Success

CHICAGO, March 25—That the exchanged car show which opened at the Coliseum Saturday morning will be a success from the show promotion standpoint is attested by the report made to-day that \$18,095 has been realized from the sale of space, making a profit of \$4,000 which will be rebated to the members of the Chicago Automobile Trade Association who are exhibiting. It is anticipated that ticket sales will bring this rebate up to about \$8,000.

The technical committee which examines exchanged cars before they are permitted to exhibit has passed 341 cars, totaling in value \$348,000. Fifty-eight cars have been rejected either because

they did not come up to the requisite condition mechanically, or because the price placed on them was too high. Seven hundred thousand free tickets have been placed in Chicago and surrounding territory and it is expected to place one million before the doors open.

Canadian Plant For Leonard Tractor

DETROIT, March 25—The Leonard Tractor Co., Ltd., of Canada, has been organized and will erect a plant in Canada, though the exact location has not been fixed. According to H. M. Leonard, president, it is planned to build 2500 tractors during 1918. This concern is also contemplating the erection of a plant in Kalamazoo. In fact, a building site has been secured in that city, but at present operations will not be started in the United States. It is expected that plans will be perfected for productive operations here about Sept. 1. The officers of the Leonard Tractor Co. of Michigan, capitalized for \$1,500,000 are H. M. Leonard, president; John Hurlbut, vice-president; C. W. Martin, sec'y-treas. The Leonard Air Washer Corp., which is a Michigan corporation, is a separate organization, building air washers on a royalty to the Leonard Tractor Co. The Leonard Air Washer company's office is located in Kalamazoo.

The Leonard tractor is a 4-wheel drive unit, having a capacity of three 14 in. plows and is an enclosed transmission type. The final drive is an enclosed internal gear. The gear box provides four speeds in either direction and the tractor is capable of running one-half to 8 m.p.h., forward or backward. The makers claim that the tractor requires oiling but once a year, except in the motor and universal joints. This is accomplished by a series of patent oil-tight housings.

Specialize in Used Cars

GREENSBORO, N. C., March 21—The demand for used cars in North Carolina is already apparent, and a number of dealers are beginning to specialize in this field. It is easier to sell a used car in good condition than a new car because of the increase in the price of the majority of the popular cars now on the market, coupled with the fact that prospective purchasers as often as otherwise will have to wait indefinitely for the delivery of new purchases.

The present year is expected to be a record one also for the number of women drivers of gasoline cars, and a number of dealers are equipping with the idea of making them especially adaptable for women drivers.

Dealer Using Women for Driveaways

JACKSON, MICH., March 21—A dealer from Parsons, Kan., brought to the Briscoe Motor Corp., of Jackson, five women and one man to driveaway a train of cars. The route will be via Indianapolis, Springfield, Hannibal and west of Parsons. The Briscoe company has driven away 300 cars during the past 2 weeks, most of them going westward.

Third Liberty Loan Will Be 3 Billion at 4½%

Details of Issue Are Determined and Campaign Will Start on War Anniversary

WASHINGTON, March 25—The Third Liberty Loan is to be \$3,000,000,000 at 4½ per cent, according to an announcement to-day by Secretary of the Treasury McAdoo. Oversubscriptions will be accepted.

The amounts and dates of maturity of the bonds have not been determined. Holders of previous issues may exchange them for the new issue.

Deering Magnetic Prices Set

CHICAGO, March 25.—During the past week the Magnetic Motors Corp., manufacturer of the Deering Magnetic car, closed two distributing contracts with companies that also are representing the Owen Magnetic. The New England territory for the Deering Magnetic has been assigned to the Owen Magnetic Motor Car Co. of Boston, and sales in Ohio, West Virginia and western Pennsylvania will be handled by E. W. Liven-sparger, the Owen Magnetic distributor at Cleveland.

Deering Magnetic prices now have been definitely fixed, the seven-passenger and four-passenger road cars selling for \$3,950 each, the coupe for \$4,850 and the sedan for \$4,950. Six different standard color combinations are offered, the bases of which are as follows: Mist o' Marne blue, Rolls-Royce blue, Holland blue, Beaver brown, Liberty green and Strong wine.

Big Tractor Company for Columbus

COLUMBUS, OHIO, March 21—Plans practically have been completed for the organization of a corporation which, it is said, will give Columbus the largest farm tractor manufacturing establishment in Ohio. It is to be a company with \$1,000,000 or more capital stock. The basis will be the McIntyre Mfg. Co., a \$100,000 concern.

This company makes the Farm Boy tractor. Practically its entire present output and that for some time in the future, unless increased, is under French contracts and being exported. Plans are to erect immediately a building equal in size and capacity to the present in West Goodale Street, so that the output would be doubled. The concern then will give employment to at least 300 men.

College Aid for Soldiers

MANHATTAN, KAN., March 25.—A. A. Potter, dean of the division of mechanical engineering of the Kansas State Agricultural College, who has been lecturing to the soldiers at Camp Funston, near Manhattan, has invited the men to take short courses at the college in the lines of work which they are studying at the camp. The present plan is for about three hundred men to be assigned for a period of two or three weeks to attendance at the college.

Big Prosperity Wave Flows Over Cleveland

Car, Truck and Parts Makers Having Productive Season—What Makers Are Doing

CLEVELAND, March 21—Cleveland is experiencing a wave of business prosperity as its motor industries are organizing themselves into full swing and its commercial business barometer is rising rapidly. A considerable group of automobile truck and parts manufacturers are located in Cleveland and without exception they report an exceedingly productive season.

The White Co. is utilizing but a small part of its productive facilities for passenger car work. The demand is naturally small in a car of this price, the price being in the neighborhood of \$5,000 for all models, but truck business is especially good. The White Co. is deeply engaged in war truck production and is one of the few concerns which have not taken on any great amount of United States war business, due to the fact that it is heavily involved in transacting business with the Allies, particularly France. It is making, however, some United States trucks, particularly for the Ambulance and Signal Corps.

The Willard Storage Battery Co. is producing in the neighborhood of 60,000 batteries a month. This is a small percentage behind what it was a year ago on account of the reduced passenger car production. Nevertheless, the percentage is relatively small on account of the large sales through dealers throughout the country and it is interesting to note that the business is gaining rapidly, so that if its present increases continue it will soon be on the same basis as a year ago.

The Chandler Co. is well under way with its large tractor building. It is expected that it will be from 2 to 3 years before this business is in full swing, although production may start towards the end of the summer.

The Jordan Motor Car Co. is experiencing good business throughout the entire country, particularly in the South, where express shipments are being made where it is possible to get the express equipment. This fortunately has been possible for the last few weeks, although it appears that it will become increasingly difficult to secure. The production is aimed to be in the neighborhood of 50 a week by April. Cars are being driven over the roads to Chicago and points through the Middle West. It is impossible to drive south, but the express shipments heretofore have taken care of deliveries to this part of the country. Jordan has 153 orders on hand for immediate delivery.

Hackett Starts New Plant

GRAND RAPIDS, MICH., March 21—The Hackett Motor Co. has started construction work on the first unit of its plant in Burlingame. It is proposed to have the building, costing between \$35,000 and \$50,000, completed within 60 days,



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and to employ at the start between eighty and 125 men. Assembling, making bodies, painting and upholstering will be done at the new plant, axles being made at Flint, radiators at Racine, Wis.

Tractor Demonstration for Michigan

GRAND RAPIDS, March 26—The Tractor and Implement Dealers of West Michigan will conduct a public exhibition and demonstration of power farming machinery here on April 23, 24 and 25. Twenty-five acres of land have been obtained, and several shelter tents will be erected, as well as a large tent in which lectures will be given by agricultural experts and county agents.

Saxon Six Advances \$50

DETROIT, March 25—The Saxon Motor Car Co. will advance the price of its six-cylinder touring model \$50, from \$995 to \$1,045, effective April 9. The four-cylinder model has been discontinued.

Overland Prices Going Up

TOLEDO, March 25—The Willys-Overland Co. is about to increase the prices of all its models, which advance will become effective April. No figures, however, are available.

Smith Truck Control Changes

CHICAGO, March 25—Change in the control of the Smith Motor Truck Corp. by the purchase of a dominant interest by a syndicate of New York and Boston capitalists, announced a few days ago in eastern financial papers, is confirmed by R. I. Eads, vice-president of the company, but he declines at present to reveal the identity of the purchasers. The plant is being appraised and the business audited.

Accessory Show to Be Held Next September

Exhibition in Municipal Pier Instead of Coliseum—Sanction Asked of M. & A. M. A.

CHICAGO, March 25—The accessory show which was held in the Coliseum last fall and which then was known as the "Ford accessory show" is to be held again this September, but this time the name Ford will be dropped, and it will be a general accessory exposition.

It is expected that it will be held in the Municipal Pier and not in the Coliseum. The pier is much better for show purposes and there is more room.

An effort is to be made to get the buyers from jobbing houses to Chicago at the time of the exposition. A request has been made of the Motor and Accessory Manufacturers' Association for a sanction. The matter is still pending.

Following the holding of the show last fall Motor World sent a letter to all the exhibitors about a month after the show in an effort to secure an expression of opinion as to the value of the exposition.

Of thirty-five replies received twenty-six were enthusiastically in favor of the show, while only nine said they did not derive any particular value from it. Those who are in favor of the show stated that they got a great deal of good will and general publicity out of it, that they sold goods, took orders for future delivery, made connections with jobbers and had a general all around good business result. They state that they will be pleased to go into the show if one is to be held this fall.

One company states that an out-and-out accessory show is 99 per cent better than a regular motor car show because the people who come there come to buy goods. Several stated that the cost of the show was many times returned by the business done. One manufacturer said he connected with agencies in Canada. Another stated that the interest was all from the trade and very little from retail buying. Another stated that he received \$10,000 worth of business from the show. As a general rule the exhibitors are enthusiastically in favor of a repetition of the exposition.

Baker Electric Price Increase

CLEVELAND, March 26—The Baker R. & L. Co. will increase its factory prices on April 1, as follows:

Model	Old Price	New Price	Increase
Brougham ...	\$3000	\$3150	\$150
Coach-type ..	3200	3400	200

May Relocate War Industries

WASHINGTON, March 23—The War Industries Board is making an extensive survey of the location of war industries. This may result in the transfer of many Government contracts from the congested eastern industrial centers to the west and the south where factories are working under less pressure.

Train Schoolboys for Operation of Tractors

International Harvester Giving Elementary Instruction to Boys in Chicago Salesroom

CHICAGO, March 22—Through the co-operation of the Chicago high schools and the International Harvester Co. something like fifteen hundred boys are being fitted for efficient help on the farms this coming summer. The boys are given elementary instruction in the principles and operation of gasoline engines and tractors, in the construction and operation of farm operative equipment, how to harness, drive and care for horses and how to perform other duties calculated to turn them into fairly efficient farm hands.

The course has been running for several weeks now and will continue until about May 1. It consists of theoretical instruction in the class room, work with the equipment which some of the schools possess and in addition afternoons spent among real machines. The classes, in squads of from twenty to forty, each afternoon go to the display rooms of the International Harvester Co. which the company has donated for the purpose, and here they are given practical instruction in the construction, operation and care of farm machinery.

Unfortunately, owing to limitations of time and opportunity, such instruction as can be imparted on farm motors is necessarily very elementary. Still, the boys will carry away with them a very good general notion of what a gasoline engine and a tractor look like and will have a more or less comprehensive knowledge of what they are designed to do. The instruction on general farm operative equipment is more thorough and practical.

A. S. Marlow, in charge of the retail farm operative equipment department of the Harvester company, devotes his afternoons to the work and takes charge of the classes during the time they spend in the display rooms. He lectures on the construction and use of the various farm implements and demonstrates their operation as far as it is possible to do so on a sample floor. Following his lecture the boys are allowed an additional half hour during which they are permitted to clamber over the various machines, manipulate the levers and generally familiarize themselves with the appearance and functions of the equipment. This encourages them to make individual investigation and the interest they manifest is indicative of their desire to learn all they can.

The use of the sample room and Marlow's time are contributed by the International Harvester Co. and the time the boys put in under Marlow's instruction counts as regular class work. The result will be that when the boys get out to the farms this summer they will be of real assistance to the farmers. With the knowledge they will have acquired of the mechanical construction of the im-



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plements which have been explained to them they very soon will pick up the actual operative skill and will become efficient farm helpers within a short time. The interest the boys display in their work is a gratifying indication that they realize the seriousness and importance of the work they have undertaken and is also evidence that they intend to make themselves as proficient as the opportunity which has gone to them will permit.

How To Sell Used Cars

ST. LOUIS, March 25—Final reports on sales at the used-car show are that exactly 80 per cent of the number of cars in place when the show opened were sold. By changing exhibits, the Weber Motor Co. sold 120 per cent of the number exhibited. Several sold as high as 100 per cent. All dealers agree that show week and the week following were the best their used-car departments had known for some time. The sentiment is for another used-car show, probably this fall.

Bulletin for N. A. D. A.

ST. LOUIS, March 25—The National Automobile Dealers' Association is to have a bulletin which will carry official affairs to the members. President Vesper and Assistant Secretary G. Elmo Holke are receiving advice on the form of their paper. The necessity of such a move became apparent last week when the flow of individual membership applications continued at over 100 a week, and a number of distributors' associations reported progress in arrangements in bringing to the association the dealers or members in a body. The Southwest continued to contribute most of the members. President Vesper left Saturday to meet speaking engagements in Oklahoma City, Dallas, Fort Worth and San Antonio. In the latter city he will speak before the Texas State Automobile Dealers' Association on "The Effect of the World War on the Automobile Industry of the United States."

Yale Eight Discontinued

SAGINAW, March 22—The Saginaw Motor Car Co. has discontinued the manufacture of the Yale eight and has sold its entire plant to Nelson Bros. Truck Co., Saginaw. The Puritan Machine Co. of Detroit has purchased the service stock of the company.

Want to Tank the Huns ? Then Join This Force

Two Tank Companies Forming in New York Need 200 Men—Requirements Are Simple

NEW YORK, March 25—American tanks in great numbers and in several different types for different kinds of fighting are being rushed to completion. They are being constructed in a number of factories in the east and middle west and, while the Government is averse to giving out actual figures, it may be stated authoritatively that the United States is going into tank production on a scale hitherto undreamed of.

Two hundred men are wanted at once to enlist in two New York tank companies. They should apply to Captain Henry H. George, 3rd, at 729 Sixth Avenue, New York. The men need not have mechanical knowledge and may be from 18 to 41 years old. This includes men of draft age. Applicants must be of marked intelligence, sober and reliable. Early service in France is promised.

For men who volunteer early in these New York companies there is excellent opportunity for quick advancement to non-commissioned rank. The Tank Service is a separate branch of the Army and has no connection with any other department.

The personnel of Light Tank Company will be 1 captain, 1 1st lieutenant, 3 2nd lieutenants, 2 sergeants (1st class), 17 sergeants, 27 corporals, 2 cooks, 20 privates (1st class), 30 privates. A Heavy Tank Company will consist of 1 captain, 4 1st lieutenants, 16 2nd lieutenants, 2 sergeants (1st class), 43 sergeants, 43 corporals, 5 cooks, 79 privates (1st class), 65 privates.

Olds Dealers Gather

ST. LOUIS, March 25—The Oldsmobile dealers of this district met here last week as guests of the De Luxe Automobile Co. Phil H. Brockman, president of the company, told them what he had learned on a recent visit to the factory concerning shipments, output, etc. He then told of the necessity of speaking at once for cars needed and for a drive-away party. He took orders for 187 cars and arranged with enough dealers and chauffeurs to accompany him to Lansing on Sunday to bring back 73 cars. All dealers were from nearby Missouri and Illinois towns.

Another Meeting for Philadelphia

PHILADELPHIA, March 25—The Philadelphia Automobile Trades Association plans another trade get-together dinner such as was held recently when 300 of the dealers and the salesmen were addressed by Alfred Reeves, general manager of the N. A. C. C. The next meeting will be held between the sixth and sixteenth of April in the evening, and it is anticipated that the crowd will be considerably larger than the 300 at the first meeting.

Good Roads Campaign Planned for Missouri

Contributions and Labor Volunteers Wanted to Put Highways in Prime Condition

KANSAS CITY, March 21—The Highway Engineers Association of Missouri at Kansas City recently adopted resolutions indicating the sincerity of the members to get all roads into condition at the earliest possible moment to carry heavy traffic, and also to plan for permanent highways.

The outstanding feature of many discussions and most private conversations was that engineers find nearly every road forced now to carry automobile, truck and tractor travel that is essential to the welfare of communities; and that these country roads cannot be put into condition to care for the travel this spring and summer under the ordinary practice of getting the help of the farmers with their teams.

The engineers generally endorsed the statement of G. C. Lakin, construction engineer of the Standard Oil Co., who said that his company studying the problem of road improvement found that the reason roads had not been built faster or more generally was the lack of equipment for road work.

The county highway engineers, finding that men with teams will not be available this spring and summer and that the volunteer services of farmers must be replaced by contributions, are scrambling around for motor equipment which will get the work done, and especially culverts and bridges built to bear the traffic necessary to and resulting from food production.

Fortunately most Missouri counties will be in position to buy equipment. Under the orders of the state tax commission requiring valuation of 100 per cent for tax purposes there has been an increase of around 50 per cent in the assessed valuation of Missouri property and unless the state legislature reduces the tax levy some counties will have 300 per cent more money from their usual levy and the least increase in any county will be 6 per cent for the expenditures of 1919.

St. Louis Sees Two Strikes

ST. LOUIS, March 25—Strikes of automobile top trimmers and of body trimmers are reported at the Ford assembly plant here. The men say they will decline to work until guaranteed full time. They say that they have been working only three days a week. No question of wages, hours, recognition or conditions are involved. A strike involving 3000 employees of the Wagner Electric Manufacturing Co. was settled this week by Major Rodgers, representing the United States Ordnance Department. He obtained consent of the employees who were demanding recognition of the union and shorter hours and in-

creased wages to return pending a settlement to be made for them by the United States mediators within 30 days. For several days the Wagner plant and automobile starter service stations were under police guard.

Watch for Him!

Editor Motor World: There is a man who gives the name of W. E. Meyer, who claims to represent the Hoosier Automobile Insurance Co. of Princeton, Ind., that is working garagemen and dealers of this city, and others I suppose. He called on me and I took out insurance with him on my cars and paid him for same.

I did not receive my policy after several days so I wrote said company and they said in reply that they have no representative here and wondered how he got hold of their application blanks. I have notified the Chief of Police about this man and thought I would write you about it as you might wish to publish a notice in the Motor World to inform dealers, garagemen, etc. This is a young man about 35 years old, smooth face. He has a very interesting proposition that he puts up.—Will S. Strine, 1315 McGee St., Kansas City, Mo.

March 22, 1918.

Philadelphia Organizes for Liberty Loan

PHILADELPHIA, March 25—The trade in this city has organized for the Liberty Loan. Warrington B. McCullough is chairman of group 3, A. E. Maltby is chairman of the automobile group, Ross Walton is chairman of the tire group, G. B. Shearer is chairman of the accessory group. McCullough insists that the subscriptions should amount to more than \$1,000,000.

Licenses for Vehicles En Route

PHILADELPHIA, March 25—In response to a request by President A. E. Maltby of the Philadelphia Automobile Trade Association, State Highway Commissioner J. D. O'Neill has taken action in behalf of vehicles being driven across Pennsylvania. He has recommended to chiefs of police that they do not interfere with these car and truck trains when the first and last cars carry a regular license tag and the other vehicles are marked with a tag reading "car in transit." It is understood that the trains are to run in as close formation as possible.

Want Federal Law to Stop Car Thefts

ST. LOUIS, March 25—The success of the used-car show and the widespread belief that old cars are to come back on the road this summer has caused Chief of Police William Young to advise the automobile dealers that there is one way, in his opinion, by which motor car thefts can be stopped. He suggests a Federal law making it a felony to have a car in possession on which the factory numbers have been erased.



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Driveaway Route From Pittsburgh to Toledo

Best Roads Between These Cities and to Detroit From Points in the East

TOLEDO, March 22—The following route is recommended from Toledo to Pittsburgh for passenger cars only as the best course for driveaways to eastern points or to Detroit from the east:

From Toledo follow the Sunny Ridge route to Fostoria, through Pemberville and Bradner, on stone road all along the railroad to 3 miles west of Sycamore; then straight east through Sycamore and 4 miles farther east to schoolhouse on left, and turn south to the village of Lemert; here turn east to Broken Sword; from that town follow angling road southeast to Bucyrus on the Lincoln Highway; from Bucyrus follow the Lincoln Highway to Mansfield; there leave the highway on the road to Oliveburg; from Oliveburg, making Ashland again on the Lincoln Highway; follow that route east with 7 miles of dirt road in Ashland County and 7 more in Wayne County to Osnaburg. From that point take the best route according to local advice to Minerva. One route, the Lincoln Highway, extends by way of Robertsville, and the other one to the north. From Minerva follow the Lincoln Highway to Lisbon; divert from the Lincoln Highway at Lisbon to Calcutta, from which point there is a direct route for 5 miles into East Liverpool; from East Liverpool concrete road to the Ohio-Pennsylvania state line, and from that point 12 miles of dirt track to Beaver, Pa., on the Lincoln Highway, from which point east the road is all good macadam.

Plenty of Body Repair Work

ST. LOUIS, March 25—Top and body builders report an exceptional run of orders for overhauling and repairing of cars. Practically all shops doing this class of work have their space entirely filled, solicitors report, and many of them have a waiting list.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Edward A. Briel, formerly connected with the Mutual Motors Co., Jackson, Mich., has been appointed sales manager of the Hausman Motor Car Co., Louisville, Maxwell distributor.

W. E. Bryan, who for 15 years has been connected with the insurance business in Louisville, is the new manager of the Quick Tire Service, Third and Kentucky Streets. He succeeds Albert E. Polk, now manager of the Denver branch of the concern.

Jack Utz has been appointed advisory engineer of the Motor Transport section of the Quartermaster Corps.

John Younger has been appointed supervisor of engineering for the Motor Transport section of the Quartermaster Corps. He was formerly truck engineer for the Pierce-Arrow Motor Car Co., Buffalo.

C. F. Eminger has resigned as sales manager of the Splittorf Electrical Co. of California and become director of sales of the Dayton Electrical Mfg. Co., Dayton, O.

W. A. Carrell, former sales manager of the Erd Motor Co., Saginaw, Mich., has been elected vice-president and general manager of the company.

Harry F. Prescott has been appointed sales manager of the Disco Electric Mfg. Co., Detroit. He was formerly connected with the Saxon Motor Car Co., sales department.

J. H. Teagan has been appointed export manager of the Hupp Motor Car Co., Detroit, succeeding Charles Denby, now in the service of the government on the war trade board.

Louis Hirschberg, formerly of Hirschberg & Freidman, has joined the sales force of the Albany Garage Co., Albany, N. Y., and will have charge of the sales of Hupmobiles.

Fred H. Cozzens has been appointed general sales manager of the Topp-Stewart Tractor Co., Clintonville, Wis.

Robert D. Byrd, well known in Baltimore motor car field, has joined the sales force of the Standard Light Co. of Baltimore.

Gustavus Sickles has been appointed sales manager of the Sullivan Motor Truck Corp., Rochester, N. Y.

J. P. Sillingham, formerly with Apperson Bros. at Kokomo and the Reo, is now general superintendent of the National Machine Products Co., Detroit.

Bob Lacey has been appointed sales manager of the Premier Electric Co., Chicago. He will organize sales campaigns for Premier vulcanizers and gear puller.

Clifford A. Williams has been appointed director of sales of the Kissel Motor Car Co., Hartford, Wis. He has directed several national merchandising campaigns.

O. L. Blanchard has been appointed district manager of the Fruehauf Trailer Co., Detroit, and will have charge of the Eastern, Southern and Middle Western States.

Henry H. Hower, sales manager of the Willys-Overland Co., Toledo, has relinquished his automobile duties for the duration of the war and has gone into war material production. He has taken the management of a plant in New London, Conn., manufacturing navy supplies.

George C. McMullen, formerly assistant plant manager of the metal products plant of the Timken-Detroit Axle Co., Detroit, is now representing the Timken Roller Bearing Co., with headquarters in San Gabriel, Cal.



ERNEST T. CONLON

who has become district factory representative of the Reo Motor Car Co. in the Southwest after three and a half years as executive secretary of the Automobile Business Association of Grand Rapids. He has been an active member of the National Association of Automobile Show Managers and has been active in the National Automobile Dealers Association

William H. Oliver, Jr., is now connected with the Taft-Pierce Mfg. Co., Woonsocket, R. I. He was formerly chief engineer of the Hyatt Roller Bearing Co., Newark, N. J., and recently with the Russell Motor Axle Co., Detroit.

Wayne Murray has been appointed general manager of the L. J. Robinson Co., Detroit, distributor for Maxwell cars and trucks and Chalmers cars in the State of Michigan. He was formerly sales manager for the Nash distributor in Chicago.

F. Smith, one time Eastern salesman for the Jefferey Motor Car Co., superintendent of branch houses for the Maxwell Motor Car Co., and until recently secretary and salesman for the Briscoe Motor Car Co., is now identified with the J & D Tire Co., Charlotte, N. C., in active charge of sales.

R. L. DeLisser, formerly branch manager of the Columbia Motor Car Co., and assistant salesman for Briscoe Motor Car Co., has been appointed Eastern salesman for the J & D Tire Co., Charlotte, N. C.

Durant Retires from California Chevrolet

Deal, Involving \$1,000,000, Places De Vaux and R. C. Durant in Control of Company

OAKLAND, CAL., March 20—W. C. Durant has disposed of his interests in the Chevrolet Motor Car Co. of California. The deal involves, it is claimed, about \$1,000,000 and places the control of the plant in the hands of Norman De Vaux, president of the company, and R. C. Durant, son of W. C. Durant, who has been general manager of the company for the past year. The Chevrolet Motor Car Co. of California, as a result of the sale of the capital stock, has been increased to \$1,500,000, paid in and plans to greatly increase its production.

Alexander Schwalbach, for several years advertising manager for the Bearings Co. of America, and more recently in charge of publicity for the Perlman Rim Corp., will be free to undertake other activities on May 1. He has made no plans for the future.

Vollbrecht and Bradfield Join Hands

DETROIT, March 23—F. A. Vollbrecht and H. C. Bradfield have combined to form the Bradfield Co. with offices in the Kresge Building, Detroit. Vollbrecht was formerly general manager of the King Motor Car Co. and Bradfield is well known throughout the trade for his sales promotion work in connection with Cole and King. The concern will handle advertising and sales promotion work. In addition, a trade associate, whose name is not as yet announced, will be taken into the concern.

Test Navy Liberty Plane

WASHINGTON, March 23—The Navy hydro-airplane equipped with a Liberty engine made another official test flight here yesterday accompanied by several other hydro-airplanes. The plane equipped with the Liberty engine quickly outdistanced the others, and the test was announced to be highly satisfactory.

Motor Securities Quotations

	Bid	Asked		Bid	Asked
*Ajax Rubber Co.	51	53	*Maxwell Motor Co., Inc., 1st pfd.	57	58½
*J. I. Case T. M. Co., pfd.	84	88	*Maxwell Rubber Co., 2nd pfd.	21	22½
Chalmers Motor Co., com.	6	8	Miller Rubber Co., com.	125	130
Chalmers Motor Co., pfd.	30	40	Miller Rubber Co., pfd.	96	98
*Chandler Motor Co.	82	84	Packard Motor Car Co., com.	95	100
Chevrolet Motor Co.	114	116	Packard Motor Car Co., pfd.	89	92
*Fisher Body Corp., com.	32	35	Paige-Detroit Motor Car Co.	17½	20
*Fisher Body Corp., pfd.	76	80	Peerless Truck & Motor Corp.	15½	16½
Fisk Rubber Co., com.	50	53	Portage Rubber Co., com.	109	110
Fisk Rubber Co., 1st pfd.	98	103	Regal Motor Car Co., pfd.	..	..
Fisk Rubber Co., 2nd pfd.	70	75	†Reo Motor Car Co.	17½	19
Firestone Tire & Rub. Co., com.	95	96	*Saxon Motor Car Corp.	7	9
Firestone Tire & Rub. Co., pfd.	97	98	Springfield Body Corp., com.	..	..
*General Motors Co., com.	117	118½	Springfield Body Corp., pfd.	..	..
*General Motors Co., pfd.	81	82	Standard Motor Construction Co.	10%	11½
*B. F. Goodrich Co., com.	43	44	*Stewart-Warner Speed. Corp.	56	57
*B. F. Goodrich Co., pfd.	93	99½	*Studebaker Corp., com.	44½	46½
Goodyear Tire & Rub. Co., com.	185	138	*Studebaker Corp., pfd.	..	94
Goodyear Tire & Rub. Co., pfd.	97	98	Swinehart Tire & Rubber Co.	22	35
Grant Motor Car Corp.	3	4	United Motors Corp.	26½	26½
Hupp Motor Car Corp., com.	3	3½	*U. S. Rubber Co., com.	54½	55½
Hupp Motor Car Corp., pfd.	82	90	*U. S. Rubber Co., pfd.	101	103
International Motor Co., com.	20	25	*White Motor Co.	42	48
International Motor Co., 1st pfd.	51	56	*Willys-Overland Co., com.	17	18
International Motor Co., 2d pfd.	22	27	*Willys-Overland Co., pfd.	80	81½
*Kelly-Springfield Tire Co., com.	42	43	Standard Parts Co.	65	70
*Kelly-Springfield Tire Co., 1st pfd.	75	85			
*Lee Rubber & Tire Corp.	13	14			
*Maxwell Motor Co., 2nd pfd.	21	22½			

*At close March 23, 1918. Listed N. Y. Stock Exchange. †Par value \$10. ‡Ex-dividend.

Illinois Shops Boost Rate for Labor to 90c.

Freeport Garages and Shops Agree to Advance—Standard Charges for Outside Jobs

FREEPORT, ILL., March 25—Garage proprietors and repairshops of Freeport have adopted a new scale of prices, calling for an advance in all kinds of garage work, effective April 1. One clause of the agreement, signed by every firm, stipulates that mechanics only will be permitted to work upon cars while the machines are in the garage. It has been found that many car owners have been in the habit of making their own repairs in the garages, using the tools and other equipment of the concern, and at practically no cost to the owner of the car. Another clause provides that all new parts supplied must be paid for immediately upon delivery and before the car leaves the garage. The new scale of pay for employees forces an increase in the prices for repair work. Hereafter patrons will be charged 90 cents per hour for the work of mechanics; \$1.25 per hour for floorman working on Sunday; \$1.25 per hour for floorman working on night overtime shift; double time for all Sunday work; 25 cents per mile for country calls, plus the time of the mechanic's, the latter's time to start when he leaves the garage and to end when he returns; 50 cents per mile for towing cars; \$1 for use of "ambulance" (device for handling disabled cars) in city, and \$2 for use of "ambulance" in country, and \$2 for towing cars to garage within the limits of the city.

Montana Show is History

GREAT FALLS, MONT., March 25—The 1918 Montana show held at Great Falls from March 16 to 20, inclusive, has made history insofar as the automobile exhibitions in the State of Montana are concerned. Running ahead of any other attempt along this line it has set a record in practically every department. There was some hesitancy on the part of the dealers in attempting to hold their annual exhibition, owing to the unusual conditions prevailing throughout the country, but experiment proved that the automobile has taken too firm a root in the industrial soil of the nation to be disturbed seriously by anything except an unparalleled upsetting of economic conditions.

Not only did the dealers of the state evidence this same interest, but the public gave proof of its attitude toward the automobile by increasing the gate receipts more than 40 per cent over the number registered by the turnstiles at any previous exhibition. The interest taken was remarkable from the standpoint of the number of inquiries registered by the dealers and the intelligent queries of prospective buyers.

The automobile men bent their efforts toward showing that the automobile was no longer to be classed as a luxury. The

word "pleasure" was eliminated and they strove to demonstrate what the automobile means in the business life of the nation. Not only was this campaign followed through publicity lines prior to the show and by the splendid display of trucks, but emphasis was placed on the fact that the automobile which is in use as a passenger car is being used more as a business proposition than as a pleasure vehicle.

The show was held in the new Ford garage recently erected here and over 20,000 sq. ft. of floor space was available for the display of cars and trucks. Thirty-seven different makes of machines were shown, over one hundred cars being exhibited. Owing to the fact that so many cars were shown it was impossible to give space for the many dealers in accessories who desired admission and it was also out of the question to handle tractors.

Houlton Holds Its Show

HOULTON, ME., March 25—The second annual exhibition of the Houlton Automobile Dealers' Association was held on March 20, 21 and 22 in the large brick garage on automobile row. The show exceeded the hopes of the most optimistic, both regarding sales and attendance.

The show of 1917 came at a time when the Aroostook farmers' pockets were bulging with money from \$8 potatoes, and they were as anxious to spend as the dealers were to sell, and with such conditions there could be only one result—many sales for cash.

This year money is not as plentiful, and those having exhibits did not look for anything like last year's business, yet the sales have been good.

The show was held in the large garage, containing 32,000 sq. ft. of floor space, profusely decorated with cut flowers, smilax, etc., where there were 50 exhibitors with cars, trucks, accessories and tires.

During the week there was a banquet for the visiting salesmen. Houlton is the center for a large number of traveling salesmen, more than 50 making their home here, as a center from which they cover the vast territory in the "Garden of Maine." Plans are being made for the 1919 show.



This poster can be secured at the Liberty Loan headquarters in any city where there is a Federal Reserve Bank. Get some posters and use them. It's an easy way to help. Ask other business men if they don't want some too

Transportation Still South's Chief Trouble

Many Dealers Shy New Models in Face of Brisk Demand—Drive- aways Increasing

SAVANNAH, March 25—The transportation bugbear is still causing haunting dreams of lost prospects to terrify local dealers. Many of the dealers have not yet received shipments of 1918 models and are worming along on what they have and can beg, borrow or steal from other dealers in the same car in this section.

The Vinson Motor Car Co. has just brought through the country from Detroit some 19 Dodge cars which will supply their wants for a short time. This company was unable to get cars by rail and just had to have them so Vinson decided to go after them. He went, in company with almost a score of drivers, to the Dodge plant in Detroit. There they secured cars and have just reached Savannah. The trip on the road occupied some 10 days, and was made without serious mishap. The cost to Vinson was about \$75 for each car.

The demand for cars could hardly be better, especially in the country districts, but to get the product to sell is the problem that is facing the dealers.

The Savannah automobile show, under the auspices of the Savannah Auto Trade Association, which will be open from April 16 to 20, will have 75 displays of cars and accessories. This is the first auto show ever held in Savannah, and something special has been arranged for each day.

Ford Milwaukee Plant to Close

MILWAUKEE, March 25.—More than one-half of the entire working force of the Milwaukee plant of the Ford Motor Co. already has obtained employment elsewhere, and by April 1 only the accounting and service force will be left intact, the plant being closed until Aug. 1 or later under the 30 per cent reduction in Ford output. Many of the men have obtained employment in the plant of the A. O. Smith Co., Milwaukee, maker of pressed steel frames, parts, etc.

CAUTION!

Do Not Drive This Automobile to Exceed 25 Miles per Hour for the First 500 Miles.

The motor and all of its working parts are new and you must give them a chance to work in. Always be SURE that there is a sufficient amount of lubricating oil in the reservoir and that the radiator is full of water.

A strict observance of the above will result in genuine satisfaction to you and will KEEP YOUR CAR OUT of the REPAIR SHOP LATER.

READ YOUR INSTRUCTION BOOK CAREFULLY.

TREMAIN & RANKIN
FORT DODGE, IOWA

This is a card which Tremain & Rankin attach to every new car which leaves the salesroom. Inasmuch as most of the minor service, which generally must be given free, originates in the first 500 miles, the card serves a useful purpose

Road Improvement Plan Adopted for Virginia

Richmond, Southern Distributing Point, Needs Better Highways—Local Notes

RICHMOND, VA., March 21—With an increased number of military camps in and around Richmond, as well as this city, being made the Southern distributing point for trucks and passenger cars, an intensive road improvement plan is to be inaugurated by the state this year. The legislature at its recent session provided a tax of 3 cents per \$100 worth of property which will net \$310,000. Each successive year the fund will increase. Added to this is the sum available from automobile licenses as well as the federal aid for road development which will give Virginia practically \$1,135,000 for new highways this year as against \$25,000 twelve years ago.

Increased truck traffic between Washington and the military camp at Petersburg and others still further south, and the announced intention of the Government to send supplies by means of automobile trucks, had a substantial bearing on the legislators in providing the road levy.

C. S. Jamison, Eastern manager of the National Tire & Rubber Co., has announced that Richmond will be the distributing station for all southern points.

The Jones Motor Co. recently brought a fleet of 25 Dodge cars to this city, the cars having made the trip from Danville to Richmond in a week's time.

The General Auto Supply Co. has taken over the business formerly conducted by the Falcon Tire Sales Co. and is remodeling its business place.

Fruehauf Trailer Elects

DETROIT, March 21.—The Fruehauf Trailer Co., Detroit, has increased its capitalization from \$100,000 to \$150,000. The following officers have been elected: President and treasurer, A. C. Fruehauf; vice-president and general manager; Harvey C. Fruehauf; secretary and sales manager, E. L. Vosler. The production of trailers has been doubled during the last two months, the average output per month being about 150.

New York Liberty Loan Committee

NEW YORK, March 25—New York dealers have lined up their Liberty Loan drive committee. Charles M. Brown (Winton) is chairman and he has appointed the following: Charles E. Miller, vice-chairman; R. H. Johnston (White); C. S. Hare (Packard); F. G. Cavill (Marmont); A. G. Southworth (Buick); Charles E. Reiss (Hupmobile); W. A. Woods (Peerless); W. C. Poertner (National); H. J. De Bear (Maxwell); I. M. Uppercu (Cadillac); C. H. Larson (Oldsmobile); C. Lescaris (De Dion); J. F. Plummer (Liberty). J. C. Nichols, Louis Mansbach, W. A. Allen and F. W. White will represent the accessory trade. The tire dealers will work with the rubber trade committee.

Continue Rush Trucks

PHILADELPHIA, March 25—The Rush Motors Corp., has been formed and has taken over the stock of the Rush Motor Truck Co., which it purchased at receiver's sale. The new company has obtained the building formerly occupied by the Bourne Magnetic Truck Co. and will continue the production of Rush trucks as well as giving service on those now in operation.

1,200 to 1,500 Airplanes a Month for Our Allies

American Planes Are to Be Shipped in Parts and Assembled in France or England

WASHINGTON, D. C., March 21—From 1200 to 1500 finished airplanes will be delivered every month to the Allies commencing Sept. 1, according to announcement made here.

The planes will be shipped in parts and assembled in France or England, where many mechanics have already been sent in special units for this very purpose. Recruiting for the non-flying branch of the aviation service has been temporarily suspended, as more men have volunteered than are needed at present.

The progress made in aviation in this country is, according to army officials, greatly in excess of their hopes. One thousand men have been arriving daily at Kelly Field, Texas, for the past month, and additional barracks had to be constructed for them.

American-built battle planes, it is said, will be in France by July in sufficient quantities to insure adequate air protection of the sectors then held by American troops. Figures on the aviation situation were yesterday placed before the full membership of the House Military Committee by Acting Secretary of War Crowell.

It was disclosed that the aviation program is somewhat behind schedule with production about 60 days behind. Statements were made to the effect that there has been too much optimism and too many over-optimistic predictions, and if it were not for these the work of the Aircraft Production Board would already have been recognized as an extraordinary achievement.

The foreign contracts which were to have provided the initial fighting equipment for General Pershing's air forces were said to be still further behind the program.

Estimates of the time required to get a completed battle plane from the factory in the United States to the front in France have been placed at 90 days. The War Department is now endeavoring to cut that period in half, and this will be one of the main duties of the new committee headed by Snowden Marshall, and which was announced last week.

Motor Products Gains 48 Per Cent

DETROIT, March 21—Earnings of the Motor Products Corp. during the first full fiscal or operating year, ending Dec. 31, 1917, amounted to \$537,527.67, of which \$233,333 has already been paid in dividends. The corporation has no liabilities except its current monthly accounts.

Assets such as cash, sound accounts receivable and land contracts amount to \$2,919,967.35. Sales for the year have amounted to \$9,633,082, which is an increase over a previous period of \$3,153,506, or 48.6 per cent. This increase does

not include any government or war orders and covers a term in which the corporation's affairs were consolidated by bringing four of its manufacturing plants into the newly acquired Lozier plant. No provision has been made in the earnings for Federal taxes, which, it is estimated, will be between \$80,000 and \$100,000.

Government business for the future has been secured to the amount of \$5,500,000, and orders have also been secured for new business to the amount of \$2,000,000.

Akron Trade Bars Jay-Walkers

AKRON, OHIO, March 21—Jay-walking in Akron is frowned upon in the new traffic ordinance just passed through the co-operation of various civic organizations, including the Akron Automobile Club, the Akron Automobile Trade Association and city officials.

The ordinance provides that pedestrians shall not cross the principal streets in the downtown section, except at cross-walks.

Two other important clauses in the ordinance relating to pedestrians follow:

"Pedestrians shall cross streets at right angles with the street, and at no street intersection shall they cross diagonally.

"It shall be the duty of all pedestrians to observe the line of traffic at street intersections where traffic officers are stationed, and to obey the signal of policemen for directing the movement of such traffic, and they shall not cross before the signal is given for the traffic to move in the direction toward which the pedestrians are crossing."

Another feature of the ordinance which is "new" is the provision relating to parking in the downtown district. Badly congested streets are to be cleared entirely of automobiles. These regulations were brought about by the fact that Akron's traffic problem has got to be one of the worst in the State of Ohio and severe measures were necessary.

Philadelphia Favors Time Change

PHILADELPHIA, March 21—The Philadelphia Automobile Trade Assn. has passed a resolution favoring a change of time which will start the day one hour earlier than at present. Such a measure is part way through Congress, and the association voted to notify its representatives there that it was in favor of the proposed plan.

Peerless Truck & Motor Earns \$1,065,869

NEW YORK, March 21—The Peerless Truck & Motor Corp. earned net profits of \$1,065,869 in 1917, which is equal to 10.6 per cent on the \$10,000,000 outstanding stock. Sales during the year aggregated \$18,924,451, an increase of \$5,399,428 over 1916. This does not include the munitions and special contracts of the subsidiary companies, including the General Vehicle Co., Inc., and the Peerless Motor Car Co.

How to Make Money on "Renewed" Ford Cars

Boston Dealer Adds 20 Per Cent to Selling Cost to Cover "Renewing" Expenses

BY having taken used cars in trade all winter Burnett & Sherman, Ford dealers in Boston, have now a considerable stock of what the firm calls "renewed Fords." Twenty per cent is added to the selling cost in disposing of these, and they are taken in at a price which permits their resale at a profit. This is one of the profitable parts of the business, and due to the prospective shortage of cars these dealers believe their trading will turn out to be a good investment. They now have fifty cars, all of which have been "renewed." Once in a while a car is sold "as is," but not very often.

A great deal of the new Ford business is repeat business. After a car has been driven about, before long, especially in business, the salesman tells the owner that he has gotten his best value out of the car and that he should now put a new one in service and turn the used car over to the dealer or some person who would not give it as hard service as the present owner is giving. This argument generally gets across.

The Spirit That Counts

GREENSBORO, N. C., March 21—Twenty-one young men who left Danville, Va., nearly two weeks ago for Detroit, Mich., to drive back cars for a motor concern have arrived safely after a tedious journey of more than nine hundred miles. The cars began running at 6 o'clock and continued until 9 o'clock each day. The men were thoroughly worn out and stiff.

No accidents marred the trip and all the machines were brought through in



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good condition. At one point in Pennsylvania it took two days to cover thirty miles, there being a notorious stretch of mud on the road in which 129 U. S. A. trucks on their way to an Atlantic port had become stalled.

Service Managers Organize

DETROIT, March 21—Believing that by banding together service managers can render better service to customers and also benefit themselves, Detroit service managers met last week and formed what will be known as the Automotive Service Managers Association. They discussed the advisability of a uniform charge for service.

The officers are: L. R. Alexander, president; H. Rose, vice-president; L. H. Grussey, secretary-treasurer. Meetings will be held bi-weekly.

Here Is a Good Envelope Stuffer

USED CARS

USED CARS are not always *abused* cars. We are constantly taking in cars on new Chalmers cars. These cars are, as a rule, dependable and still have lots of service left in them. We are very careful in making trades to see to it that the used cars have not been abused and that they are in usable condition when we get them.

If you contemplate the purchase of an automobile and feel that the higher prices of the new cars are prohibitive, we suggest that you look over our stock of used cars. Our plan of selling same will make it absolutely certain that the car is going to give satisfaction.

Yours truly,

FORT DODGE AUTO CO.

It is used with good results by the Fort Dodge Auto Co., Fort Dodge, Iowa

Specifications of the Leading Cars

**Revisions Are
Made in Table
Every Week**

Model	Motor	S. A. R.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Rims	2-Passenger	5-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT	6-31x51	29.4	Remy	Stmberg	Remy	DD	3	122	34x4 SS	1895	.....	1895	2150	.....	.....
B-32	6-31x51	29.4	Remy	Stmberg	A-Lite	D	3	112	32x3 SS	11145	1095	.....	1395	.....	.....
MALLEN	6-31x51	22.5	Conn	Stmberg	G & D	D	3	122	32x4 SS	.....	1375	.....	.....	.....	.....
AMERICAN	6-31x51	29.4	G & D	Zenith	Wetsh	DP	3	120	33x4 SS	**1465	.....	2165	.....	.....	.....
ANDERSON	6-31x51	25.2	Conn	Zenith	Wetsh	D	3	120	33x4 SS	**1925	.....	.....	.....	.....	.....
DELUXE	6-31x51	29.4	.....	Johnson Bijur	Wetsh	DP	3	130	34x4 SS	12550	.....	2550	.....	.....	.....
PAPERSON	6-31x51	33.8	Remy	Rafid	Remy	DP	3	120	34x4 SS	1345	1345	.....	1895	1895	.....
AUBURN	6-31x51	25.3	Remy	Rafid	Remy	DP	3	131	35x4 SS	1685	1685	.....	2450	.....	.....
6-30-B	6-31x51	29.4	Delco	Rafid	Delco	DP	3	122	32x4 QD	3750	3750	4000	4550	5000	5250
6-44	12-21x51	39.6	Delco	Stmberg	Delco	D	6	142	34x4 QD	2600	.....	12650	4100	4000	.....
AUSTIN	4-31x51	22.5	Eisman	Zenith	G & D	DP	4	121	32x4 QD	.....	.....	.....	.....	.....	.....
BIDDLE	4-31x51	22.5	West	Stmberg	West	DP	3	118	33x4 QD	1785	.....	.....	.....	.....	.....
BOUR-DAVIS	4-31x51	22.5	West	Rafid	West	DP	3	118	32x4 QD	1680	.....	.....	.....	.....	.....
18B	4-31x51	22.5	West	Rafid	West	DP	3	118	32x4 QD	.....	.....	.....	.....	.....	.....
BREWERSTER	4-4 x51	25.6	Boech	Zenith	U.S.L.	C	3	125	34x4 SS	5500	.....	.....	8400	8500	.....
BRISCOE	4-31x51	16.3	Conn	Buick	A-Lite	C	3	104	30x3 C	825	825	.....	.....	850	.....
BUICK	4-31x51	18.2	Delco	Marvel	Delco	C	3	106	31x4 C	795	795	.....	1185	1845	.....
E-34-35	4-31x51	27.3	Delco	Marvel	Delco	DP	3	113	34x4 SS	1265	1265	.....	11685	1845	.....
E-44-45	4-31x51	27.3	Delco	Marvel	Delco	DP	3	113	34x4 SS	1495	1495	.....	2175	1265	.....
E-49	4-31x51	27.3	Delco	Marvel	Delco	DP	3	113	34x4 SS	.....	.....	.....	.....	.....	.....
CADILLAC	8-31x51	31.2	Delco	Ovn	Delco	D	3	132	35x5 SS	2805	.....	2805	3650	4145	.....
87	8-31x51	31.2	Delco	Ovn	Delco	D	3	132	35x5 SS	.....	.....	.....	.....	.....	.....
CASE	6-31x51	29.4	Wetsh	Rafid	Wetsh	D	3	125	35x4 SS	11875	1875	**2375	.....	.....	.....
CHALMERS	6-31x51	25.3	Remy	Stmberg	Wetsh	DP	3	117	32x4 SS	1365	1365	1450	1625	1850	2925
6-30	6-31x51	25.3	Remy	Stmberg	Wetsh	DP	3	117	32x4 SS	.....	.....	.....	.....	.....	.....
CHANDLER	6-31x51	29.4	Boech	Rafid	Wetsh	DP	3	123	34x4 SS	11995	11675	1595	2195	2295	2895
CHEVROLET	4-31x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3 C	660	695	.....	1060	.....	.....
690	4-31x4	21.7	Remy	Zenith	A-Lite	C	3	108	33x4 SS	935	935	.....	1475	.....	.....
FA	4-31x51	21.7	Remy	Zenith	A-Lite	C	3	108	33x4 SS	1385	1385	.....	.....	.....	.....
D	8-31x51	36.4	Remy	Stmberg	Delco	C	3	127	33x5 SS	2395	1995	2195	2495	2595	.....
COLE	8-31x51	36.4	Remy	Stmberg	Delco	C	3	127	33x5 SS	.....	.....	.....	.....	.....	.....
870	8-31x51	36.4	Remy	Stmberg	Delco	C	3	127	33x5 SS	.....	.....	.....	.....	.....	.....
COLUMBIA	6-31x51	25.3	A.Kent	Stmberg	W.Land	DP	3	115	32x4	11495	1350	.....	2395	.....	.....
CAD	6-31x51	25.3	A.Kent	Stmberg	W.Land	DP	3	115	32x4	.....	.....	.....	.....	.....	.....
CONQUEST	6-31x51	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	.....	1285	.....	.....	.....	.....
C-60	6-31x51	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	.....	.....	.....	.....	.....	.....
COMMONWEALTH	4-31x51	19.6	A.Kent	Cartier	Dyneto	DD	3	112	32x3 SS	1995	995	.....	.....	.....	.....
4-40	4-31x51	19.6	A.Kent	Cartier	Dyneto	DD	3	112	32x3 SS	.....	.....	.....	.....	.....	.....
EROW-ELKHART	4-31x51	19.6	Conn	Zenith	Dyneto	D	3	114	32x3 SS	1935	.....	1295	1395	.....	.....
CE-36	4-31x51	19.6	Conn	Zenith	Dyneto	D	3	114	32x3 SS	.....	.....	.....	.....	.....	.....
CUNNINGHAM	8-31x51	45.0	Delco	Stmberg	West	D	3	132	35x5	.....	4250	.....	.....	.....	.....
6-31x51	8-31x51	45.0	Delco	Stmberg	West	D	3	132	35x5	.....	4250	.....	.....	.....	.....
DANIELS	8-31x51	33.8	Wetsh	Zenith	Wetsh	D	3	127	34x4 QDR	3250	3250	3250	.....	.....	.....
B	8-31x51	33.8	Wetsh	Zenith	Wetsh	D	3	127	34x4 QDR	.....	.....	.....	.....	.....	.....
DAVIS	6-31x51	25.3	Delco	Stmberg	Delco	C	3	119	34x4	1485	1485	.....	1850	.....	.....
H. I. K	6-31x51	25.3	Delco	Stmberg	Delco	C	3	125	34x4	1785	1785	.....	.....	.....	.....
J. I.	6-31x51	25.3	Delco	Stmberg	Delco	C	3	125	34x4	.....	.....	.....	.....	.....	.....
DISPATCH	4-31x51	22.5	Boech	Rafid	U.S.L.	CU	4	120	36x3 QD	1150	.....	1250	1400	1400	.....
4-31x51	4-31x51	22.5	Boech	Rafid	U.S.L.	CU	4	120	36x3 QD	.....	.....	.....	.....	.....	.....
DIKIE FLYER	4-31x51	16.9	Conn	Cartier	Dyneto	D	3	112	32x4 SS	1995	995	.....	1375	.....	.....
1895	4-31x51	16.9	Conn	Cartier	Dyneto	D	3	112	32x4 SS	.....	.....	.....	.....	.....	.....

[illegible]

ABBREVIATIONS—"A. Kent," Atwater Kent; "A-Lite," Auto-Lite; "B. & Ball," Ball & Ball; "Conn," Connecticut; "G & D," Gray & Davis; "Eisman," Eismann; "L.N.," Leese-Neville; "N. E.," North East; "N.Wemb," Newcomb; "O.M.," Owen Magnetic; "Radf," Rayfield; "Smbg," Stromberg; "Splitof," Splittorf; "Titen," Tillotson; "W. Lard," Ward Leonard; "D." Disk; "DD," Dry Disk; "P. Plate," DP, Dry Plate; "C. Cone," CF, Friction; "G. Gearless," CG, Control Unit; "Magnetic," SS, Straightside; "QD," Quick Detachable; "C. Clincher," DC, Detachable Clincher; "QDR," Quick Detachable Reversible; "U," Universal; "R & M," Robbins & Myers. NOTE— $37\frac{1}{2} \times 3\frac{1}{2}$ r means that the rear tires are smaller. Detachable top, 300x, means \$300 extra.

Williams Got the Cars

SPRINGFIELD, MASS., March 21—The Williams Motor Sales Co., distributor of the Dodge, has a stock of cars that will supply its needs for some time to come. The same also applies to a number of other dealers in this locality, due to the foresight of Williams, who saw his opportunity and grasped it.

Williams, some time ago, foreseeing increasing difficulties in getting cars through from the factory, optioned a building at the fair grounds and despatched circular letters to about twenty different automobile makers, explaining the situation and outlining his views of the importance of local storage as an offset to forthcoming demand.

The response was so prompt and satisfactory that the building is now said to be literally full of cars of different makes, Williams himself assuming responsibility and paying the watchman, and incidentally making a profit on the deal in addition to securing as much storage as he needs for himself on a ground-floor basis. So well has the plan worked out that he is figuring another year on offering a much larger amount of space to the makers on a co-operative basis, thereby taking care of the needs of an increased amount of territory, with a proportionate economy of charges.

Owner Always Protected

DETROIT, March 21—A feature of the new raised insurance rates, to become effective April 1, is that regardless of who is driving an insured car he is protected by the policy provided the car is being driven with the owner's permission. The collision insurance on passenger cars will be increased 20 per cent and on commercial cars 10 per cent. There will be no \$25 deductible clause; only full coverage or policies with \$100 deductible clauses will be written. Liability or property damage policies will be increased 20 per cent on passenger cars and 30 per cent on commercial

vehicles. Full coverage on Ford cars will be 20 per cent less. Companies will pay tire damage on full coverage policies.

Daylight Saving Bill Signed

WASHINGTON, March 21—Congress has passed the daylight bill and it has been signed by the President. The bill is designed to save time, light and fuel. It will also supply an additional hour for home gardening by city and suburban dwellers. Clocks will be turned one hour ahead at 2 o'clock in the morning of the last Sunday in March and will be turned back one hour at the same time on the last Sunday in October.

Two Coast G & D Distributors

BOSTON, March 21—Gray & Davis, Inc., have appointed two new Pacific Coast distributors. Ballou & Wright, Portland, have been made sole distributors for Gray & Davis lighting and starting system for Fords in Oregon and Washington; Weinstock & Nichols, San Francisco, will cover northern California.

Scripps Has Orders for 220 Cars

DETROIT, March 21—The Scripps-Booth Co. has on its books unfilled orders for 220 cars of its new model. The company puts out 20 cars a day, half of which are of the old four-cylinder model.

New Ohio Driveaway Route

TOLEDO, March 21—A new route through Ohio for driveaways has been announced by the Lincoln Highway Association. It is via Toledo, Fostoria, Bucyrus, Mansfield, Olivburg, Ashland, Canton, East Liverpool and Beaver, Pa., to Pittsburgh. The route out of Detroit via Lima, Springfield, Columbus, O., and Pittsburgh, following part of the national Old Trails road, has been rendered impassable by the collapse of the Ypsilanti bridge.

Laughlin to Make Langbien Gearset

LOS ANGELES, March 21—The Homer Laughlin Engineers Corp. has taken over the patents, manufacture and distribution of the Langbien auxiliary four-speed transmission for Fords and will market it under the name of the Laughlin-Langbien. The Laughlin concern is well financed.

A Correction

NEW YORK, March 21—In a description of the Rayfield coupling which appeared in Motor World for Feb. 13, it was inadvertently stated that this is to replace the plain thrust washers at the gear side of the Ford and Chevrolet 490 differential. This is manifestly incorrect, the coupling being intended only for use on magneto, generator and pump shafts.

Canada Tractor Demonstration Next Fall

MONTREAL, March 21—The extensive farm tractor demonstration for eastern Canada has been scheduled to take place here Sept. 17, 18 and 19. It is expected that the recent removal of import duties from tractors will increase the number of foreign exhibits.

Ohio to Rush Roads

COLUMBUS, March 21—The State of Ohio will take over private contracts for reconstruction of 12 miles of the National Road in Muskingum County, put day and night forces on the stretch and complete the highway with the greatest dispatch, that army motor trucks being sent to Atlantic seaports may use the route. The decision was made at a meeting between Governor Cox, the State Highway Commission, Auditor of State Donahey and Attorney General McGhee, following a request both from the War Department and Council of National Defense that the thoroughfare be made available for military uses immediately.

Coming—THE SHOW CALENDAR—Events

Is YOUR Show Listed? Send Us the Dates

Bridgeport, Conn....Sixth Annual Cars and Trucks...Mar. 25-30
Fourth Regiment Conn. Home
State Guard, State Armory and
Casino. B. B. Steiber, Mgr.

Rochester, N. Y....Tenth Annual, Rochester Auto...Mar. 25-30
Trades Ass'n. Exposition Park.
C. A. Simmons, Mgr.

Fort Fairfield, Me....Reed's Garage. R. F. Reed, Mgr....Mar. 27-29

Atlantic City, N.J....Second Annual, Garden Pier.....Mar. 30-
W. W. Garabant, Mgr. Apr. 6

Chicago, Ill.....Second Annual Used Car, ChicagoMar. 30-
Auto. Trade Assn., Coliseum. Apr. 6

Hartford, Conn.....Hartford Automobile Dealers'.....Mar. 30-
Assn., State Armory. B. F. Apr. 6
Smith, Mgr.

York, Pa.....York Automobile Dealers' Assn.....Apr. 1-6
Queen St. Tabernacle.

Battle Creek, Mich. Second Annual; W. A. Donaldson,.....Apr. 3-6
Mgr.

Green Bay, Wis.....Brown County Automobile Trade.....Apr. 6-8
Assn.

Ogdensburg, N. Y....Second Annual, State Armory.....Apr. 3-6

Red Bank, N. J.....Monmouth County Auto. Dealers'Apr. 6-13
Assn., Armory. E. C. Von Kat-
tengel, Mgr.

Reading, Pa.....Reading Automobile Trade Assn.Apr. 8-13

Deadwood, S. D.....City Auditorium.....Apr. 15-20

Calumet, Mich.....Upper Peninsular Show, CopperApr. 17-20
County Automobile Dealers' &
Garage Owners' Assn., Coliseum.

Davis, Cal.....Tractor Demonstrations, Univer-...Apr. 17-19
sity of California.

Conventions

Detroit, Mich.....World's Salesmanship Congress....Apr. 24-27
Third Annual Session.

Lima, O.....Ohio State Automobile Assn.....May 3-7

Hot Springs, Va.....Convention National Association....June 5-13
of Automobile Accessory Jobbers.

Why You Should Be A Michelin Dealer

No.
5

Michelin Advertising Reaches Practically Every Motorist

Michelin advertising reaches practically every motorist in the United States—not just once or twice, but regularly and frequently throughout the year.

This advertising drives home the fact that Michelin Dealers offer their customers greater value and satisfaction for their money than can be had anywhere else.

Michelin has been telling the motorists in your territory to go to the Michelin Dealer—and why.

Is this great force behind your business? If not, why not?

Write for full particulars of Michelin's dealer-proposition.

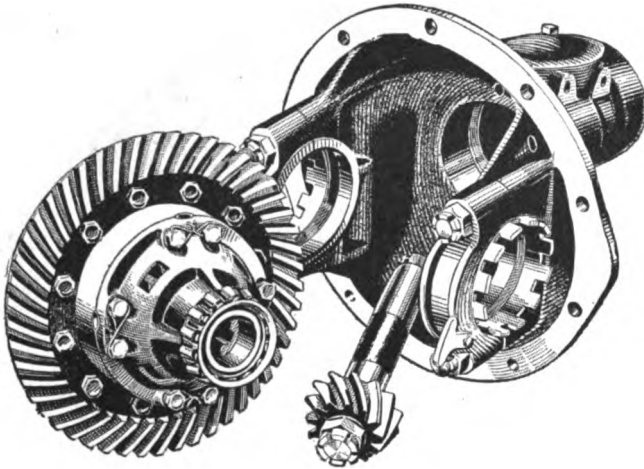
Michelin Tire Co.
Milltown, N. J.



MICHELIN

When writing advertisers please mention Motor World—it identifies you

Studebaker



The Differential and Rear Axle

The New Studebaker Cars

*Beautiful in Design
Thoroughly Modern
Mechanically Right*

DIFFERENTIAL bearings are rigidly supported by a strong one-piece malleable carrier in which a positive lock secures the adjustment. This unit, with the driving pinion and differential bearings, can be removed entire without disturbing the axle. Driving pinion and ring gears are chrome vanadium steel of spiral bevel type, ensuring quiet-running gears. A large removable plate with oil-filler hole at rear of axle housing permits easy inspection and cleaning.

The rear axle is of improved semi-floating type, in which a powerful housing, practically immune to breakage, carries two live axle shafts, to which the wheels are rigidly keyed. These shafts carry the load on Timken bearings. Side strains are taken by the staunch axle shafts, which are especially designed from fine alloy steel to carry the torque and load, instead of by a low-carbon steel housing. This type of axle is now standard on the finest cars and trucks and, being practically trouble-proof, is by far the most desirable for an owner.

The FOUR \$895

The LIGHT-SIX \$1295

The BIG-SIX \$1695

All prices subject to increase without notice

STUDEBAKER

Detroit, Mich.

South Bend, Ind.

Walkerville, Ont.

Address all correspondence to South Bend

Even the Machine Which Builds Carlisle Cord Tires is of New Pattern

A machine has been invented the like of which no man ever saw before. It builds tires with strength which no other machine can attain. For it builds, not of slender cord; it builds of the sturdiest cotton cord ever used in tire making.

Most dealers call it Rope, which it really is—rugged cotton Rope with 235 pounds breaking point.

But, stranger still, this machine builds a carcass in continuous strands without cutting or hooking or breaking at sidewall, bead or elsewhere.

Consider now the finished tire: built of the heaviest cord that ever found its way

into a tire; built under perfectly even tension; built in unbroken strands which go round and round, across the tread, over the bead and along the inner wall of the carcass.

Look, too, at the mileage figures. The Carlisle Cord outlasts the best tires all other types of machines have built, 40 to 80 percent.

Fortunes undoubtedly will be made in hundreds of cities with this new tire. They will be made, by dealers who promptly take advantage of the opportunity, apply for dealerships, and get in on the ground floor. If interested, don't delay.



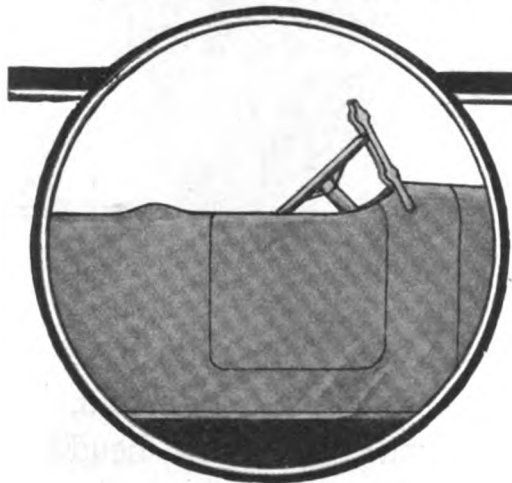
CARLISLE CORD TIRE CO., 250 WEST 54th STREET, NEW YORK CITY. FACTORY, ANDOVER, MASS.

When writing advertisers please mention Motor World—it identifies you

Refinish Your Car!

You Can Do It Yourself

A free Sample of PANVAR will be mailed upon receipt of 10c. in stamps to cover mailing expense.



List Price

\$1.50
a quart

enough to
refinish a
car.

\$5.00
per
gallon

For a Beautiful, Lustrous Lasting Finish

To apply PANVAR you don't have to be an experienced painter. PANVAR isn't a paint, but a fine, permanent high gloss lacquer finish that is self-leveling and quick drying. It leaves no brush marks, no streaks, spots or lumps.

Why drive a shoddy looking car when you yourself can give it that new fresh-from-the-factory look with a quart of PANVAR and about an hour's work? Apply it today, and your car will be ready to ride in tomorrow, looking as bright and new as the day you bought it.

PANVAR is transparent, so you can apply it

to any color of body. It dries with a hard glossy finish in from 6 to 8 hours.

Use PANVAR also to preserve the finish of metal parts, prevent rust, etc. Can also be used for water-proofing leaky tops, and re-dressing worn leather or imitation leather upholstery.

Garagemen. Use PANVAR for refinishing your customers' cars overnight. Big profit. Every car owner a prospect. Easy to apply and quick to dry.

Jobbers and Dealers. Consider the big number of car owners whose cars will need refinishing this spring. Be prepared to meet this demand. Cash in on the advertising we are now doing and will continue to do. Write today for discounts, electrotypes for catalogues, and mailing literature. Dealers and Garagemen may order direct for delivery through their regular jobber.

THE PANVAR COMPANY
605 Bulletin Building Philadelphia, Pa.

H. A. MEYERCORD, Manager Sales

THE LASTING FINISH
Panvar
TRADE MARK

When writing advertisers please mention Motor World—it identifies you

**5000
MILES**

THE MIGHTY AMAZON

WHY WE PUT THE "U" IN
"SUPERTIRES"—

Look What We Do For "U"—

Newspaper advertising, direct mail advertising, outdoor advertising and window display or store advertising, closely linked together and followed through consistently over YOUR name will firmly establish Amazon Products in YOUR territory and will make YOU stand out strongly as "The Amazon Dealer!"

The direct mail, sent out regularly, backed by the newspaper advertising run at the same time the circulars are sent out, and reinforced by the continuous showing of the outdoor and window display advertising, will bring YOU the bulk of the automobile trade in YOUR territory.

Purchasers will come to YOUR store for many other things besides Amazon Products, and YOUR entire business will be strengthened and increased by this advertising.

Taking into consideration the fact that this support DOES NOT COST YOU ONE CENT and looking forward to the future—considering the increase in YOUR volume of business and the consequent greater profits—is there any reason at all why YOU should not take advantage of it?

The Amazon Agency is a winner, and the dealer who plans for the future will find it a tangible asset.

Won't YOU write for our proposition?

THE AMAZON RUBBER COMPANY
AKRON OHIO
NEW YORK BRANCH
218 AMSTERDAM AVE

When writing advertisers please mention Motor World—it identifies you

DAYTON

QUICK DETACHABLE

WIRE WHEELS

MADE UNDER LICENSE

For Ford and Chevrolet Cars
Quick Change and Economy

The remarkable resiliency which insures 25% more tire mileage without affecting the important feature of strength is only one of the features of Dayton Wire Wheels. In addition there is always that ease of mind of making tire change with the minimum of inconvenience.

To change a tire the complete wheel is changed so that it is merely necessary to unscrew and replace the hub cap. The spare wheel is carried with tire inflated ready for instant mounting. Furnished in any desired color. Wheel carriers especially designed for Daytons can be shipped with the wheels.

DEALERS AND JOBBERS

Dayton Wire Wheels offer big sales opportunities. Write today.

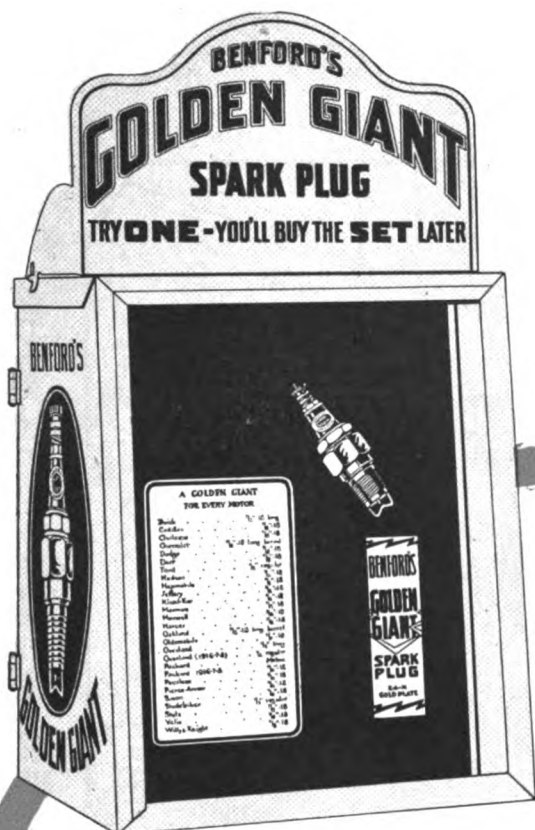
Deliveries Now!

The Dayton Wire Wheel Co.

826 Miami Road

Dayton, Ohio

When writing advertisers please mention Motor World—it identifies you



Simply Show the GOLDEN GIANT

*If you're a doubting Thomas
—and claim Missouri as your
native state—don't take our word
alone when we say that Golden
Giants will outsell any other plug.*

JUST write an order to your jobber now for our 50-plug assortment with the new Golden Giant Display Cabinet. Put the Cabinet on a show case where your customers can see it. If you put other plugs on a show case, put a Golden Giant along with them.

If a customer asks to see a spark plug—show them all—a Golden Giant with the rest.

Of course, we want you finally to put all your sales effort behind Golden Giants—but we feel that the surest way to get you to do that is for you to watch how they sell alongside all other plugs, *no matter how low the prices of the others.*

This comparative test is infallible—if every dealer in the United States will do it, every one of them will be a booster for Golden Giants.

And the profit is worth the try—the list price is always secured, your margin is big, and your customer can see he's getting his money's worth.

*The plating of pure gold proclaims that the
Golden Giant is the premier quality plug.*

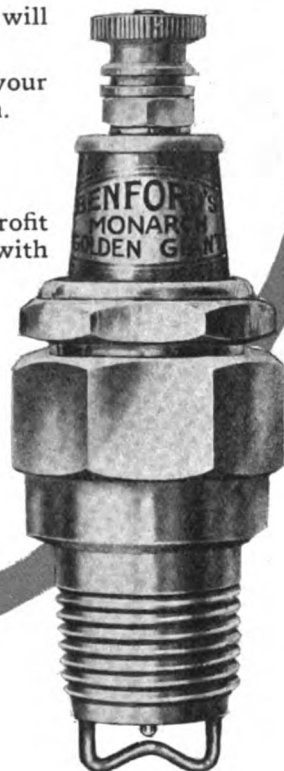
It is—its splendid service made it so with car owners—its splendid profit makes it so with dealers—our splendid sales co-operation makes it so with jobbers.—We want YOU, Mr. Dealer.

Write us—or see your jobber's salesman

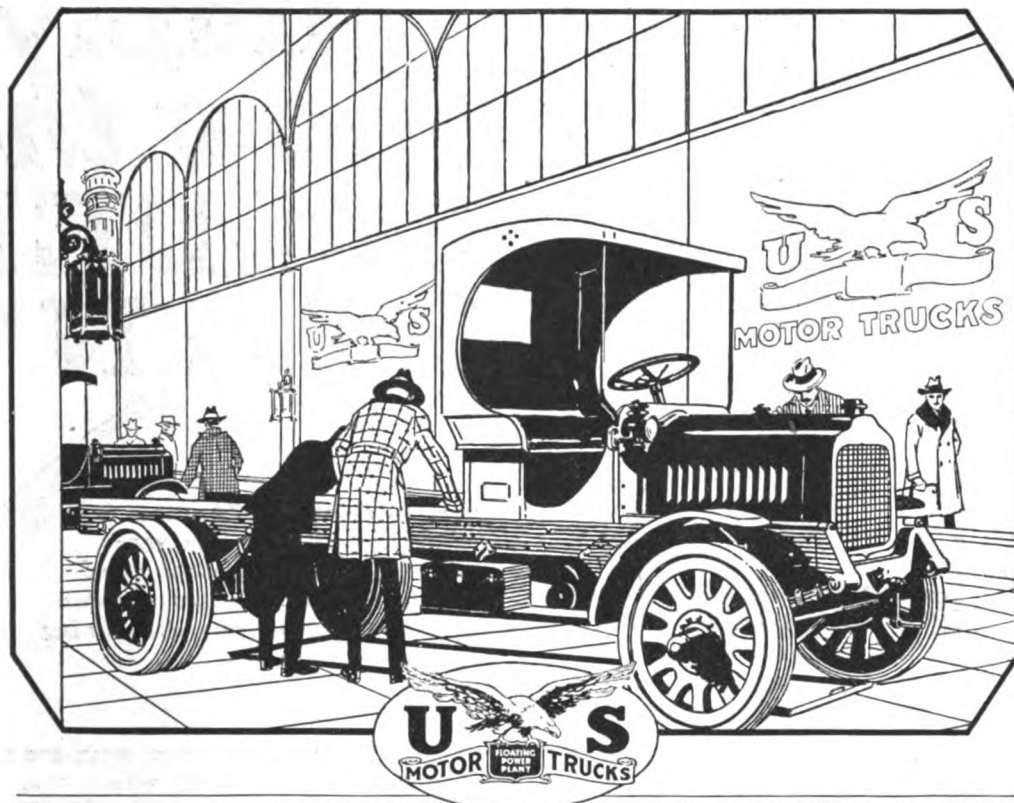
BENFORD MFG. CO.

Mt. Vernon, N. Y.

BENFORD'S GOLDEN GIANT



When writing advertisers please mention Motor World—it identifies you



THEY ARE COMING IN!

Dealers of large caliber all over the country are joining the U. S. truck distributing organization. They have sensed the drift in the transportation world—they know a good truck and a good producing organization.

Here Are Three Recent Additions:

The Indianapolis National Motor Sales Company, 426 Capitol Street, Indianapolis, distributors for central Indiana.

The Wyckoff Motor Sales Company, 420 North Craig Street, Pittsburg, Pa.

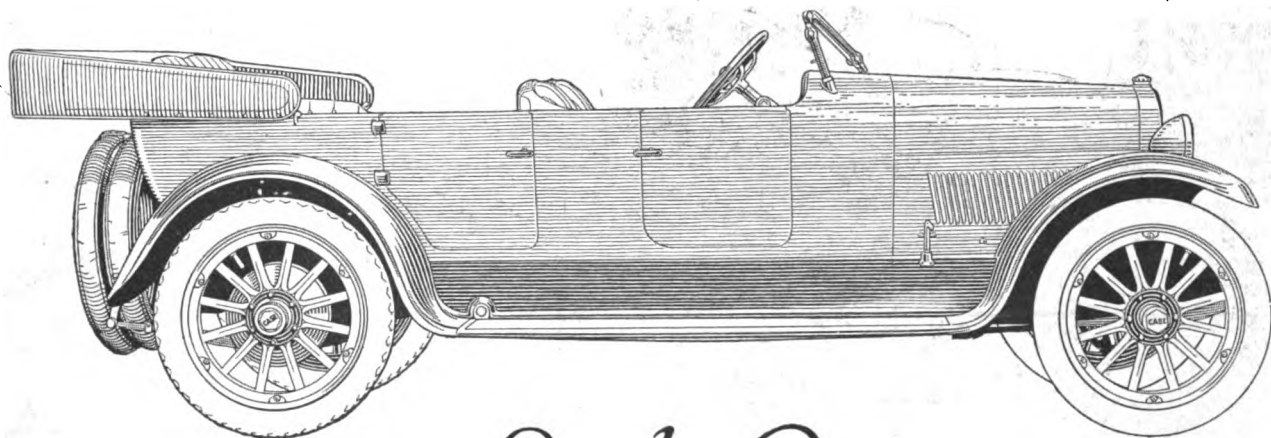
Reinman & Wolfert, Little Rock, Arkansas, a strong firm that is turning its attention from draft animals to motor trucks.

There may be an opportunity in your town as good as the one that attracted these big business men.

THE *United States Motor Truck Company*

CINCINNATI, OHIO

The New Case Six



Style Cars

DEALERS find that much is being said in appreciation of the grace and charm of the New Case Six. Even though this is not a time when men buy for style alone.

This points the way for wise dealers.

For a short time in the motor world it looked as though the whole consideration would be utility. And that in the zeal for economy, appearance would be secondary.

Case avoided this tendency. A utility car such as the Case can be beautiful as well. Economy and art may be related.

And so in the New Case Six, although it combines in its mechanical makeup all the proven fea-

tures, is at the same time a car of striking and dignified appearance.

It has been rightly named "The All-Feature Car," because every part, every principle is known and appreciated as a feature found in the finest cars.

There are a number of places where an opportunity is open for dealers to handle the New Case Six, on a very profitable basis. Write to ascertain if this opportunity exists in your territory.



J. I. CASE T. M. COMPANY, Inc.

Founded 1842

249 Liberty Street,

:

:

:

Racine, Wisconsin

*Family Model for 7 or 5 people, color dark blue, \$1875 Sport Model for 4 people, color periscope green, \$1875
All-Seasons Model, Springfield Type, for 7 or 5 people, color dark blue, \$2375*

(737)

When writing advertisers please mention Motor World—it identifies you



Thread or Wiping Cloth?

Clean, white, knit, absorbent wiping cloth will chase that engine grease and dirt.

The choice is quickly made—from greasy, tangled, knotted threads—to soft, sterilized, washable, all knit wipers.

With Marvel-Knit you can work faster, clean more thoroughly.

It is cut to convenient size for economical speed. Haste without waste. Not a wad, but a flat cloth that fits the hand, with body to absorb grease.

Save the Dirty Ones

You are economizing when Marvel-Knit is used to clean the car. Triple service is gained by washing and using the same wiper over and over.

Eliminate the straggling ends, the tagging, fouling threads.

Learn the speed which comes with a handful of sanitary, soft, absorbent Marvel-Knit wiping cloth. It stops the waste at the bale.

At \$8.40 per bale you gain three times the service as from ordinary wiping materials.

Prove this value. The most famous demonstration can be made by trying out a bale in your garage.

Sign the coupon and have 50 pounds come forward today.



Packed in 50-pound Bales

THE MARVEL ACCESSORIES MFG. CO.
CLEVELAND, OHIO. **MARVEL BLDG.**

THE MARVEL ACCESSORIES MFG. CO.,
 7275 St. Clair Avenue, Cleveland, Ohio.
 Ship a bale of wiping cloth.

Name
 Address
 Jobber

When writing advertisers please mention Motor World—it identifies you

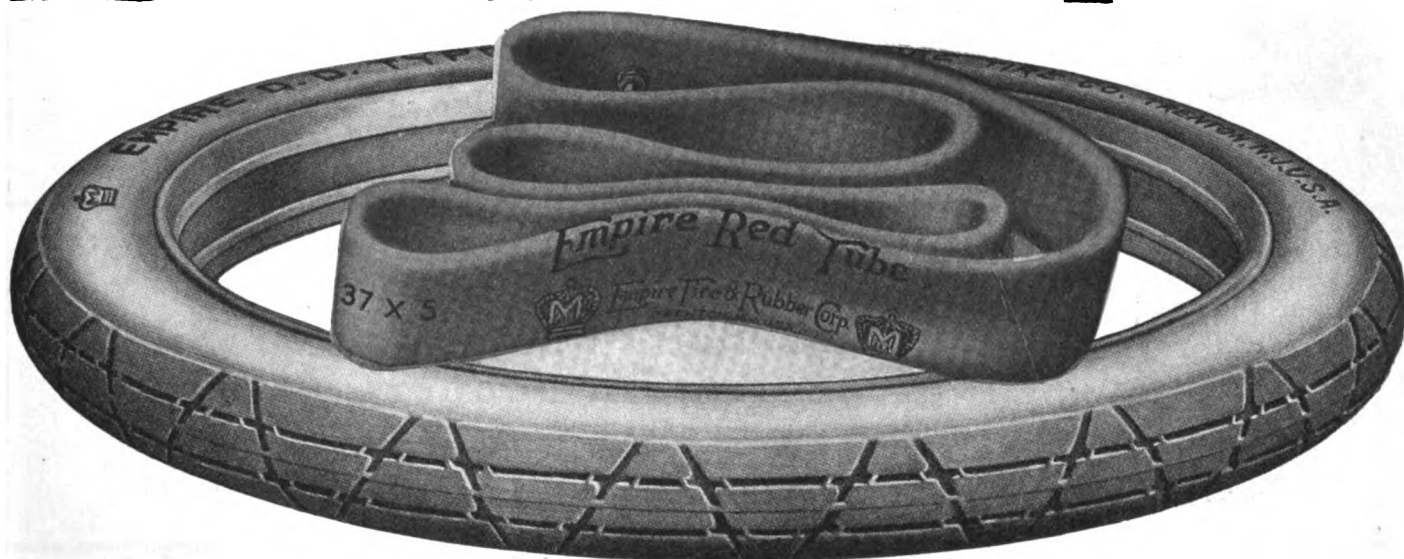
The Empire Tire Dealer

has the best proposition in the tire business

1. Because he gets the fairest margin of profit.
2. Because he has a fast seller, and a repeater—
Empire sales increased 105 per cent in 1917.
3. Because he has products with a record of high quality behind them—Empire Red Tubes last as long as the average car itself—Empire Tires are the most resilient, speediest fabric tires made—almost equal to cord tires.
4. Because he has behind him a unique and powerful advertising campaign. The reason our advertising is signed with the name **The Empire Tire Dealer** is because we want to turn the reader's attention to the local dealer who has tires to sell.
Thus the national advertising becomes a *local force* for each Empire dealer.

THE EMPIRE RUBBER & TIRE CO., Trenton, N. J.

Empire Tires and Tubes



When writing advertisers please mention Motor World—it identifies you



What A Trade Acceptance Means

When you receive a statement with a Trade Acceptance attached, look at it from this standpoint:

It is not a note. It is simply a formal agreement to do just what you intend doing; pay that bill when due.

If you wish to take your discount by paying cash, that's the best thing you can do.

But the next best thing—both for seller and buyer—is signing the Trade Acceptance.

Then, instead of an open account, the seller has bank paper which he can hold or negotiate; paying his bank for such accommodation if he wants it.

The buyer gains because he doesn't sign anything he does not know he owes.

Invoices and statements are watched more carefully. Bills are paid in their order. You are always conscious of just where you stand.

Dealers lay better credit foundations. They build on the seller's capital, for he can more safely extend a maximum credit line.

The man who buys from the wholesaler is the seller in turn to the consumer. He can—and should—use the Trade Acceptance with his own patrons.

Beware the open, running account. Make definite cleanups at short intervals with Trade Acceptances.

You'll quickly see their value to you. Extend the same support to the men from whom you buy.

Liquid credit from this source will enormously increase our country's trading capacity. It's a sensible—and patriotic—business aid. Help it along.

Write today for your copy of our booklet, "How to Run a Garage." It's mighty practical—and is free to any dealer

Published in the interest of the Dealer by the National Association of Automobile Accessory Jobbers.



National Association of Automobile Accessory Jobbers

WM. M. WEBSTER, Commissioner

1916 CITY HALL SQUARE BLDG.,

CHICAGO, ILL.



MARMON 34

Advanced Engineering

First to Sail Uncharted Seas

In the development of the modern motor car, each new voyage of discovery has had its venturesome pilot. It has ever been the courage of a few that has led the many to success

BUT no exploration in the history of the industry ever called for more gallant enterprise than that on which the Marmon engineers set out four years ago. Behind them lay all the experience and development in motor cars up to the outbreak of the European War. Before them lay the unknown seas of engineering.

For more than two years they searched this trackless main, sounding new depths and discovering many new ideas and mechanical principles. To mention a few: They found how to lessen weight of the car a full half ton and yet improve its roadability and riding ease:

—how to produce a short turning radius and yet retain the desired long wheel base:

—how to design seats wide and deep and yet build a body exceptionally low:

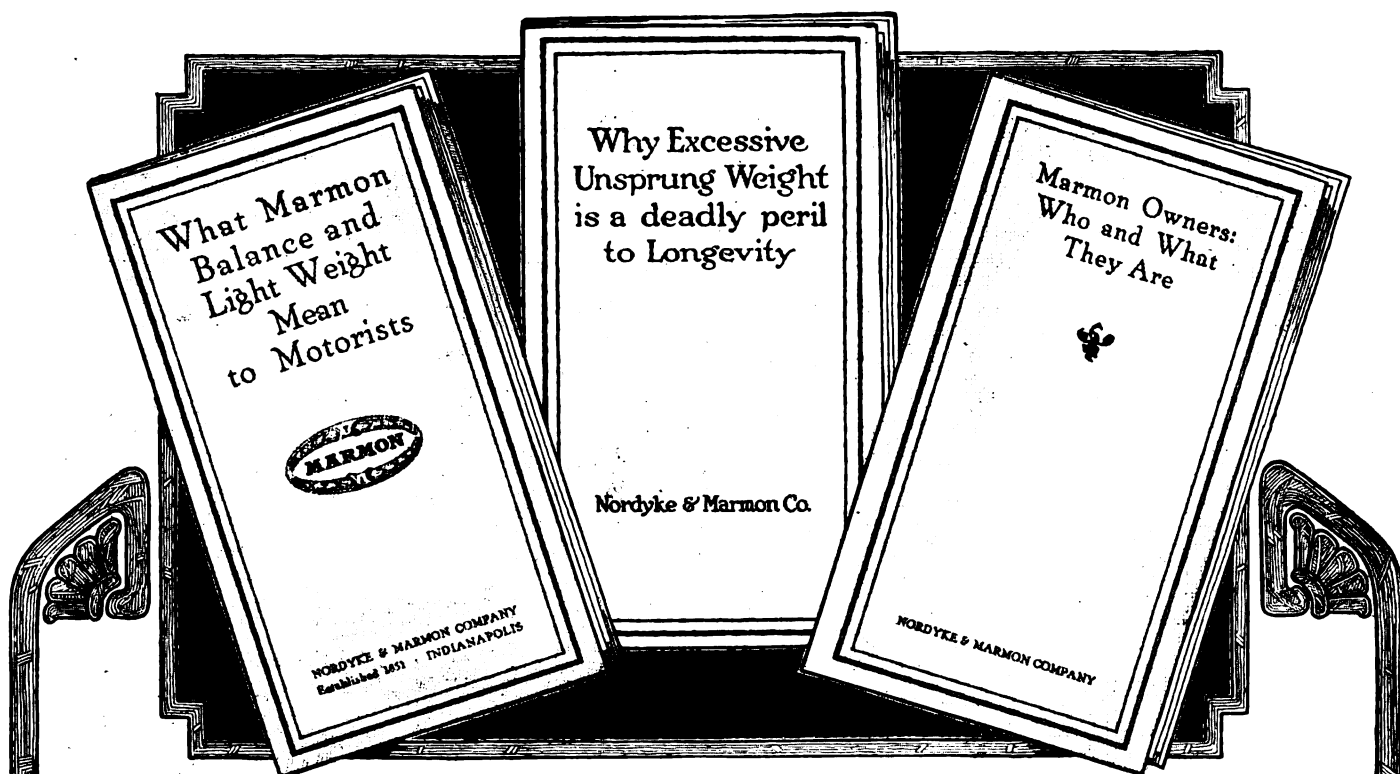
—how to attain almost perfect balance and eliminate numerous secondary parts:

They charted the way to great efficiency and power over a course of small fuel and tire consumption.

In ways like these through the Marmon 34 the world has received the accepted guide to scientific construction. And the public has, in recognition, awarded this car the place of preferment.

NORDYKE & MARMON COMPANY

Established 1851 : Indianapolis



MARMON 34

Advanced Engineering

Sales Follow this Established Leadership

THE Marmon sales proposition is exceptionally attractive to dealers in many ways. One sale equals two or three sales of low priced cars. And due to Marmon's leadership in the high grade field, it adds unquestioned prestige to the dealer who represents it.

Please do not entertain the mistaken idea that Marmon sales are confined to the large cities. They are not.

Many are sold in the metropolitan centers, it is true—but small town dealers have also made phenomenal records because of this car's wonderful adaptability to country driving.

The Marmon handles so easily, holds the road so well, and operates with such economy on any road or trail that it finds a ready market in any territory.

These points are better understood by those who know the principles of Marmon construction—the light weight, the balance and other vital advancements, which are explained in these interesting booklets illustrated here.

These booklets constitute just one of the many forms of effective sales assistance that are being constantly furnished to Marmon dealers.

NORDYKE & MARMON COMPANY

Established 1851 : Indianapolis



To Save the Lives of Our
Brothers and Sons

Invest in U. S.

Liberty Bonds

The supremely important business of America now is to win this war. This sixteen page pictorial message on that subject is made possible by the patriotic co-operation and support of the following firms:

Allen Auto Specialty Co.
Bergougnan Tire Corp.
Briscoe Motor Corp.
Champion Ignition Co.
Connecticut Tel. & Elec. Co.
Duesenberg Motors Corp.
Francis-Rand Co.
Laminated Shim Co.
New Process Gear Corp.
Paige-Detroit Motor Car Co.
Philips-Brinton Co.
Russell Mfg. Co.
Smith Glass Co., L. E.
Stevens & Co.
U. S. Ball Bearing Mfg. Co.

When writing advertisers please mention Motor World—it identifies you



What Will Protect **YOU** *If These* Are Defeated?

Our army and navy are the protectors and the only protectors of *your* home—*your* family—*your* income—*your* property.

What will become of you and yours if these protectors are weakened and rendered insufficient to their task?

They will not be defeated by the enemy.

The only way they can be defeated or weakened is through *your* failure to support them with ships, food, weapons, ammunitions, clothing and supplies.

Your life, your business, the future of your family, may depend upon how much real effort and *sacrifice* you make to invest in

Liberty Bonds

In utilizing this advertisement to talk Liberty Bonds rather than our own business, we do so in the firm belief that there will be little of either pleasure or profit in our business or any American business unless Liberty wins this war.

CHAMPION IGNITION COMPANY

Flint Michigan

Albert Champion means

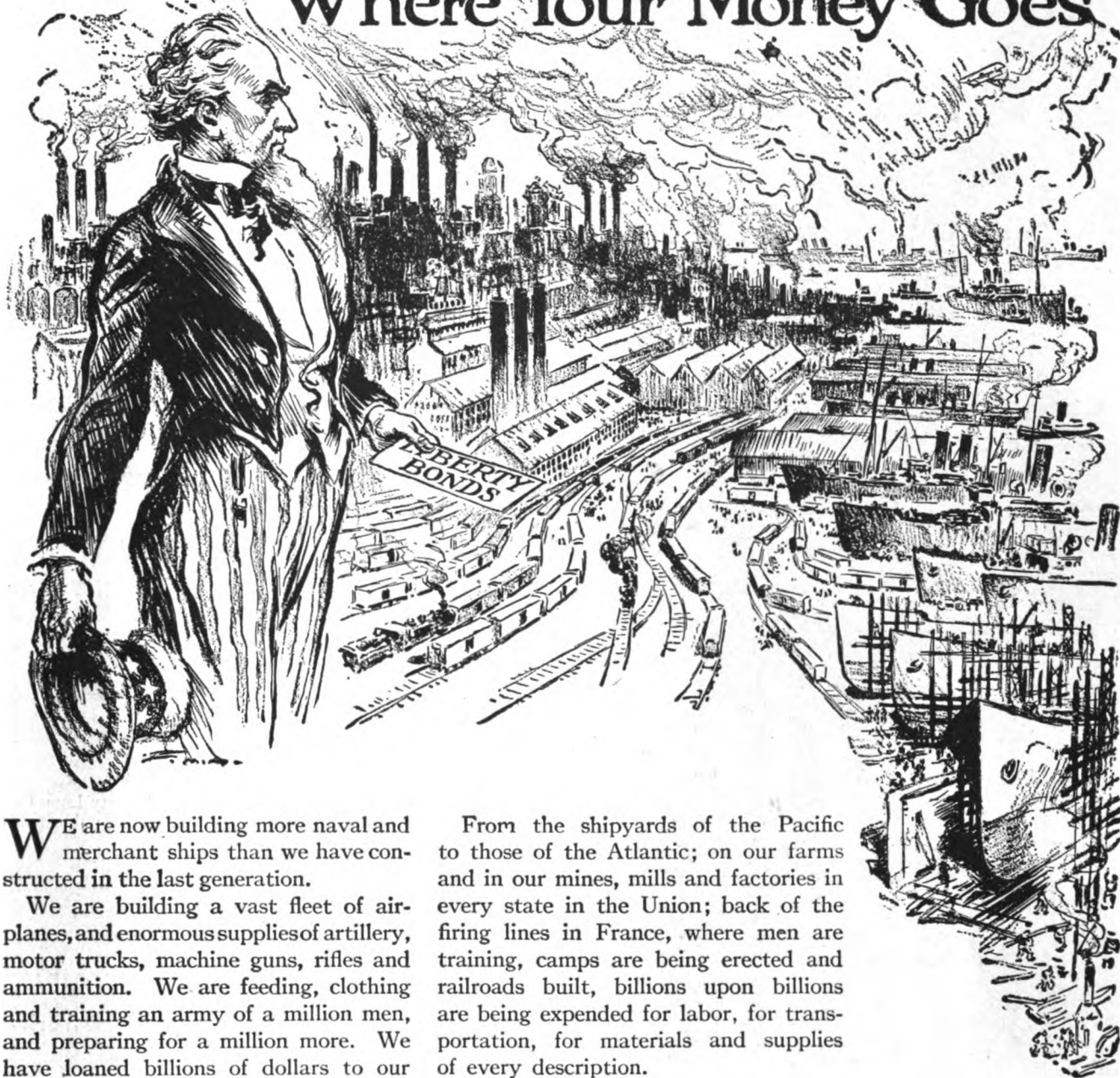
AC SPARK PLUGS

The Standard Spark Plug of America

L. V. REAVIS

When writing advertisers please mention Motor World—it identifies you

Where Your Money Goes



WE are now building more naval and merchant ships than we have constructed in the last generation.

We are building a vast fleet of airplanes, and enormous supplies of artillery, motor trucks, machine guns, rifles and ammunition. We are feeding, clothing and training an army of a million men, and preparing for a million more. We have loaned billions of dollars to our allies to be spent in the United States.

From the shipyards of the Pacific to those of the Atlantic; on our farms and in our mines, mills and factories in every state in the Union; back of the firing lines in France, where men are training, camps are being erected and railroads built, billions upon billions are being expended for labor, for transportation, for materials and supplies of every description.

The mind can hardly conceive the sums of money required for our war preparations. Yet these expenditures are absolutely essential. We must win the war quickly if possible; we must carry it on for years if necessary. We must do the job with American thoroughness, let the cost be what it may.

In co-operation with the Liberty Loan Committee this advertisement is published by

Duesenberg

The Power of the Hour

DUESENBERG MOTORS CORP. 120 BROADWAY, NEW YORK CITY

Contractors to the United States Government

Remember, when you invest in your Liberty Bonds, that there is immediate, urgent, imperative need for every dollar you can possibly spare.

When writing advertisers please mention Motor World—it identifies you



Put your money in this bank

It's the safest in the world. It pays you good interest. And your deposits in it help to insure a priceless heritage of freedom and peace for your children and your childrens' children.

*To the limit of your
resources*

Invest in the Third U. S. Liberty Loan

In co-operation with the Liberty Loan Committee this advertisement is published by

LAMINUM
The MATERIAL for SHIMS

LAMINATED SHIM COMPANY

533 Canal Street, New York



When writing advertisers please mention Motor World—it identifies you

Will You Invest
Your Money With
Uncle Sam Now?

Or Let Germany
Take It Away
From You Later?



Be practical. Look squarely at the facts. We will either invest our money with Uncle Sam now, at good interest rates, to help him win this war, or we will give it up later to pay Germany's war cost—and as much more as Germany chooses to collect. **Invest in**

Liberty Bonds Today

In co-operation with the Liberty Loan Committee this advertisement is published by

Paige-Detroit Motor Car Company
Detroit, Michigan

When writing advertisers please mention **Motor World**—it identifies you

The **THIRD LINE** of **DEFENSE** *Get into it and Dig*



In this line every true American can
and will help to win the war. Invest in

Liberty Bonds

In co-operation with the Liberty Loan Committee this
advertisement is published by

New Process Gear Corporation
Syracuse, N. Y.

When writing advertisers please mention Motor World—it identifies you

VICTORY

We are
going to

Win This War

The victory, like everything worth while in life, will require sacrifice, self denial, ungrudging effort.

In defense of Liberty, Justice and Civilization, we must use every weapon at our command. And not the least of these is money. Never in the history of the world has there been a truer cause. Invest in

Liberty Bonds

In co-operation with the Liberty Loan Committee this advertisement is published by

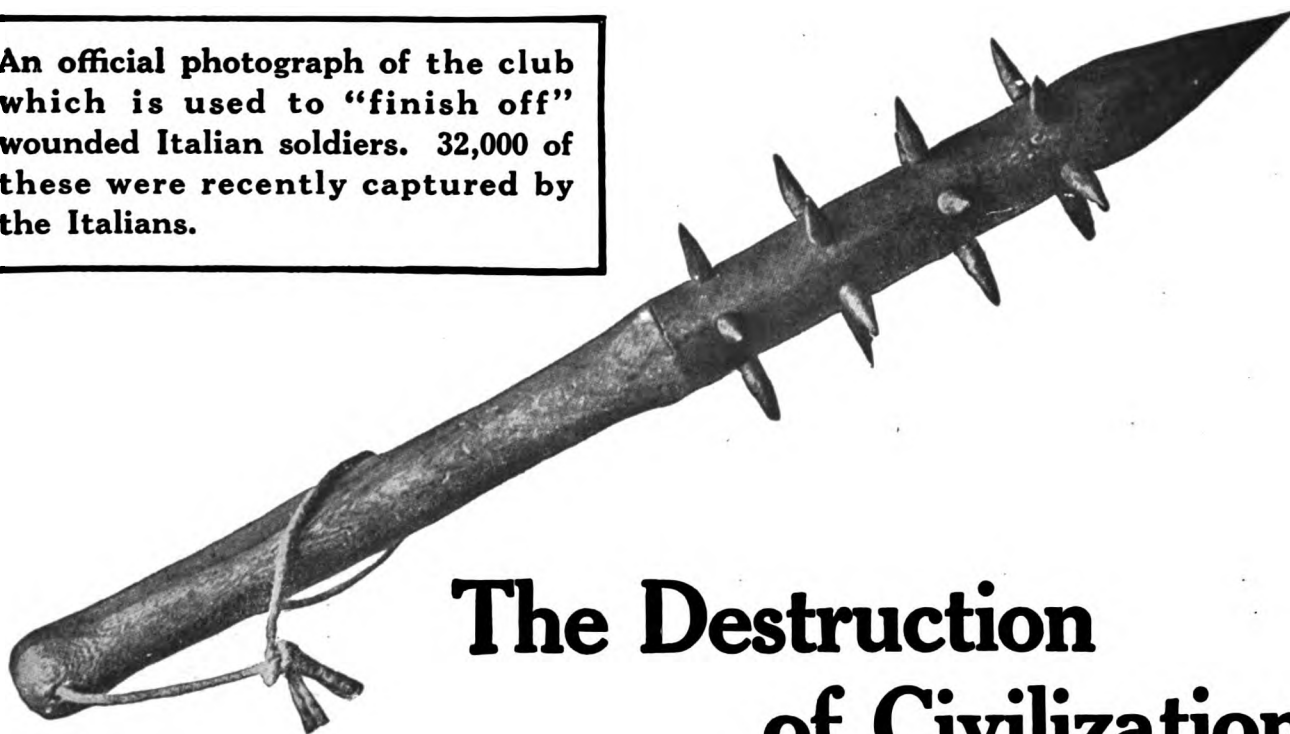
**U. S. BALL BEARING
MANUFACTURING CO.**

Palmer Street and Kolmar Avenue
CHICAGO, ILL. U. S. A.



When writing advertisers please mention Motor World—it identifies you

An official photograph of the club which is used to "finish off" wounded Italian soldiers. 32,000 of these were recently captured by the Italians.



The Destruction of Civilization

is in grim and sober reality what we are fighting this war to prevent. The club pictured above—from an actual official photograph—might be the weapon of a savage cave man of five thousand years ago. It is in fact the weapon with which German soldiers "finish off" enemy wounded who have fallen on the battlefield.

There is only one answer to make to such methods—the defeat of the German armies. America has taken up the sword to give that answer. Our army is in France to help win this war on the battlefield—that civilization may be safe, that America may be safe.

You Can Have Your Share in America's Answer to German Savagery

The Third Liberty Loan is your opportunity. It is the most direct blow that can be struck at German military supremacy. It is the most powerful aid that can be given our soldiers in France. It means rifles and helmets

and gas-masks—the best protection for our men from German brutality. It means big guns and shells and airplanes—and VICTORY.

Invest today in bonds of the Third Liberty Loan, and save the lives of American soldiers.

Save Civilization, Save America, Your Own Family and Your Own Home

We are glad to be among the favored few who have the privilege of donating advertising space to boom the Third Liberty Loan.

ALLEN AUTO SPECIALTY CO.

Makers of famous Allen Tire Case

16-24 West 61st Street

New York

When writing advertisers please mention Motor World—it identifies you

How Much of Your Pay Do You Think You Can Keep if Germany Wins This War?

If, to help America win this war, you buy

Liberty Bonds

to the very limit of your ability you are not merely helping America. You are not merely making a good investment. You are not merely helping to bring peace nearer. You are doing all these things, and in

addition you are buying the best protection for your own individual prosperity—yes, the *only* real protection you can buy.



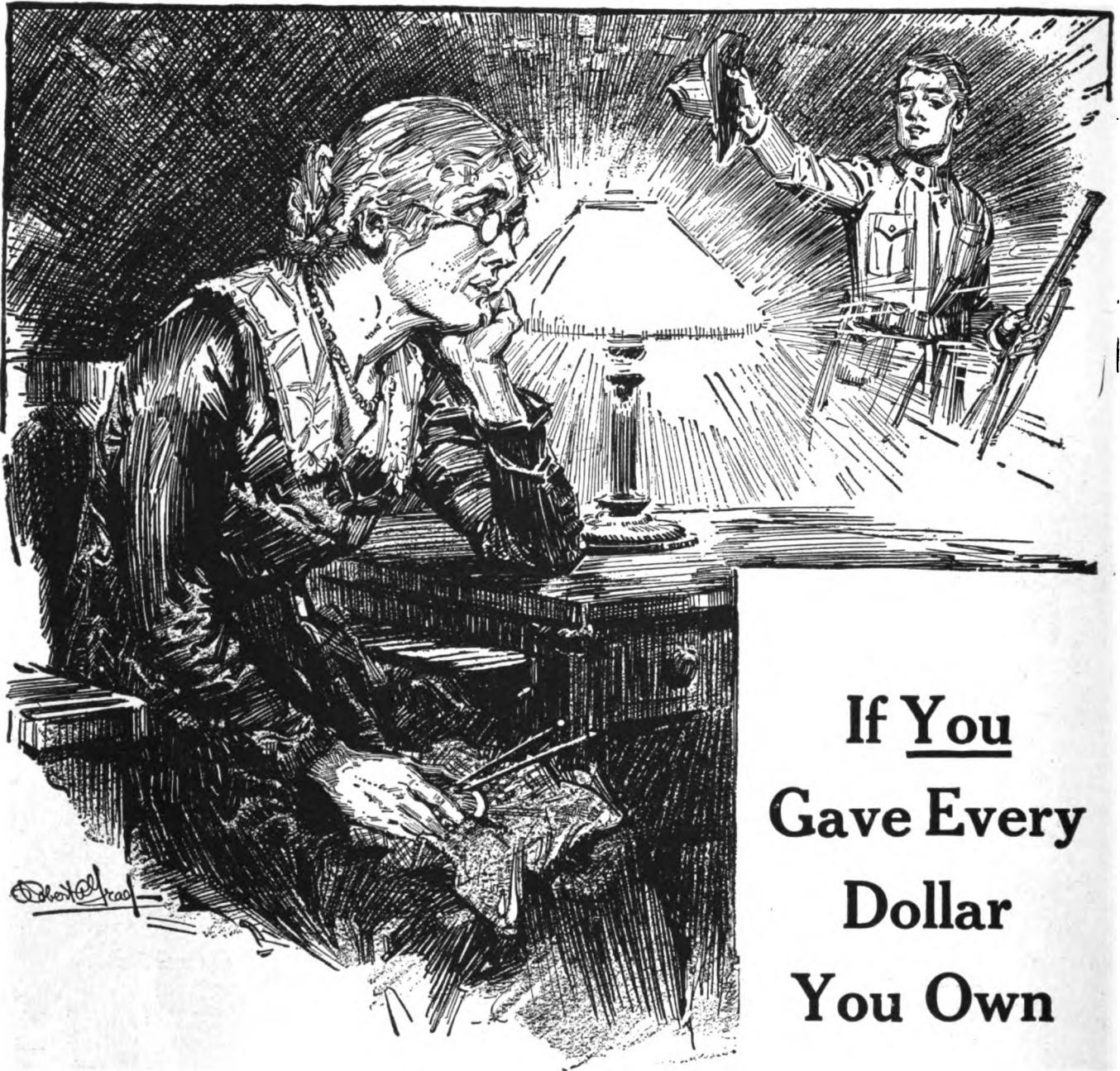
Universal Support of the Government is loyalty and patriotism and besides—if Uncle Sam is not victorious in this war there will be mighty little profit in business for U. S.—Autocracy is a close collector.

BRISCOE MOTOR CORPORATION

Jackson,

Mich.

When writing advertisers please mention Motor World—it identifies you



If You
Gave Every
Dollar
You Own

how little would the sacrifice be compared to theirs.

We are not asked to give. We are asked only to *lend*. To lend at good interest secured by the best collateral on earth

U. S. Liberty Bonds

We donate this space as business insurance.

Bergougnan Tire Corporation, 49 West 64th St., N. Y.

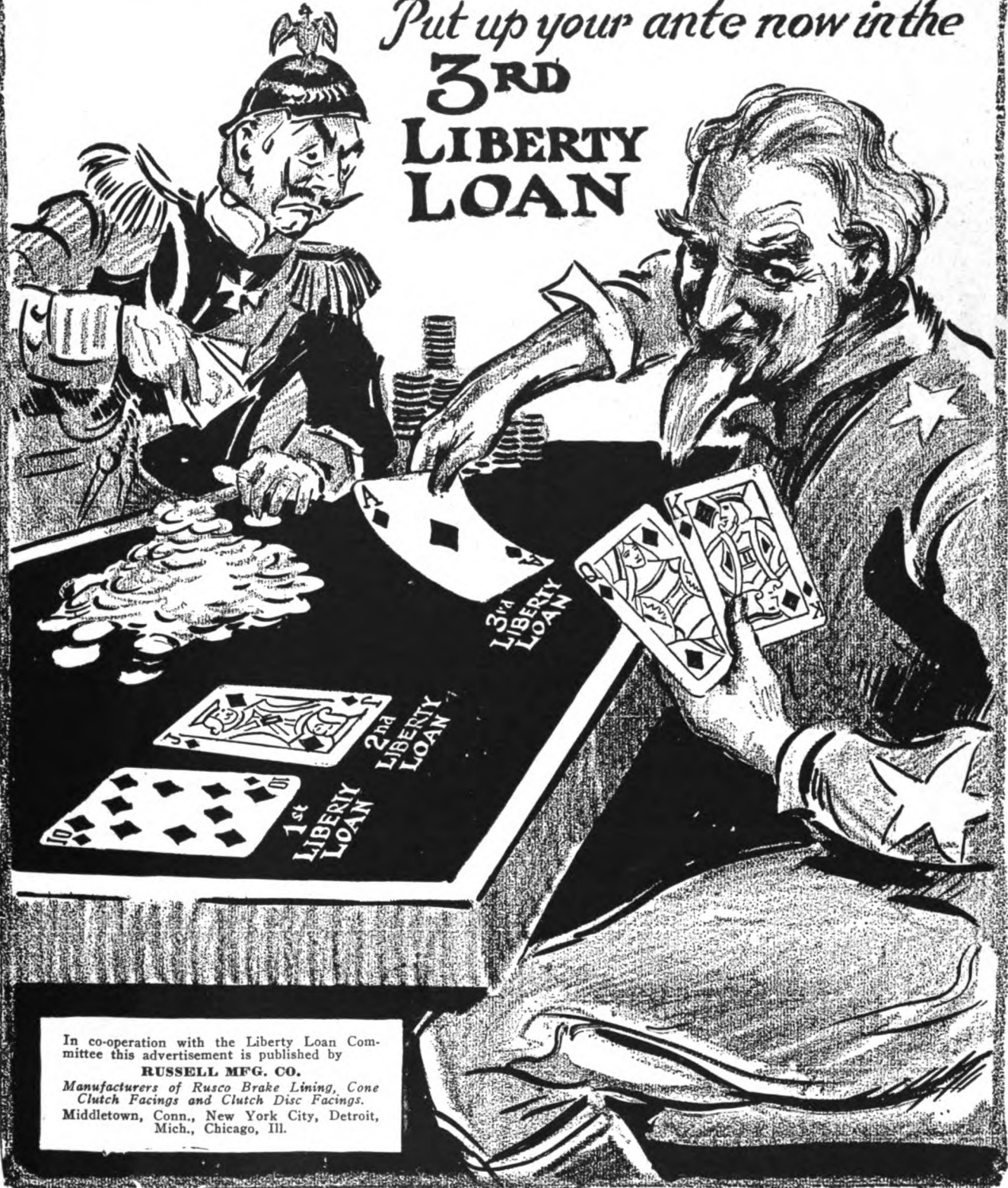
Canadian Agency—325 St. James Street, Montreal.

When writing advertisers please mention Motor World—it identifies you

He says we are bluffing!
Let's show him a big Card —
and everybody in on the Pot.

Put up your ante now in the

**3RD
LIBERTY
LOAN**



In co-operation with the Liberty Loan Committee this advertisement is published by
RUSSELL MFG. CO.

Manufacturers of Rusco Brake Lining, Cone
Clutch Facings and Clutch Disc Facings.
Middletown, Conn., New York City, Detroit,
Mich., Chicago, Ill.

When writing advertisers please mention Motor World—it identifies you



Worth Fighting For?

SHALL this little girl grow up in the sort of American home we know, healthy and happy? Shall she have the advantage of living and learning in a free land, under free institutions? Shall such children develop into Liberty-loving citizens that a free America may be proud of?

For over two hundred years Americans have fought valiantly, and died gallantly, to win for themselves and hand down to their posterity the blessings of liberty, justice, self-government and equal opportunity. This precious heritage, bought at so great a price, is now threatened.

**The question which today confronts America as a nation, and
you as an individual, is whether or not a free
America is worth fighting for**

Are American children in this and all future generations to receive unimpaired the legacy of freedom of which we are now the custodians, or shall their country be turned

over bodily to the brutal, rapacious, power-mad enemy which has forced us into this war?

This question cannot be answered by word of mouth, but by deeds alone.

Let your answer be your investment in

Liberty Bonds!

Let's stop our own jobs for a little—just long enough to send this Third Liberty Loan crashing over the top with a force that will annihilate the crazy Hun.

Stevens & Co., 375 Broadway, New York City

When writing advertisers please mention Motor World—it identifies you



YOU are asked to save every cent not needed for your reasonable support and physical well being—this is thrift

Bonds Are Not A Burden But A Blessing

THRIFT requires the exercise of restraint and self-denial—qualities without which you cannot achieve the success in life which it is your ambition to achieve, and for the lack of which you are likely to suffer in later years.

The money you acquire by thrift you are asked to loan—not give—to your country. It will come back to you when you may need it far more than you do now, and you will be paid interest for its use.

This war is a frightful thing, but it may prove of inestimable benefit to you, if it teaches you the good habit of thrift. Start the habit by investing in

Liberty Bonds

In co-operation with the Liberty Loan Committee this advertisement is published by

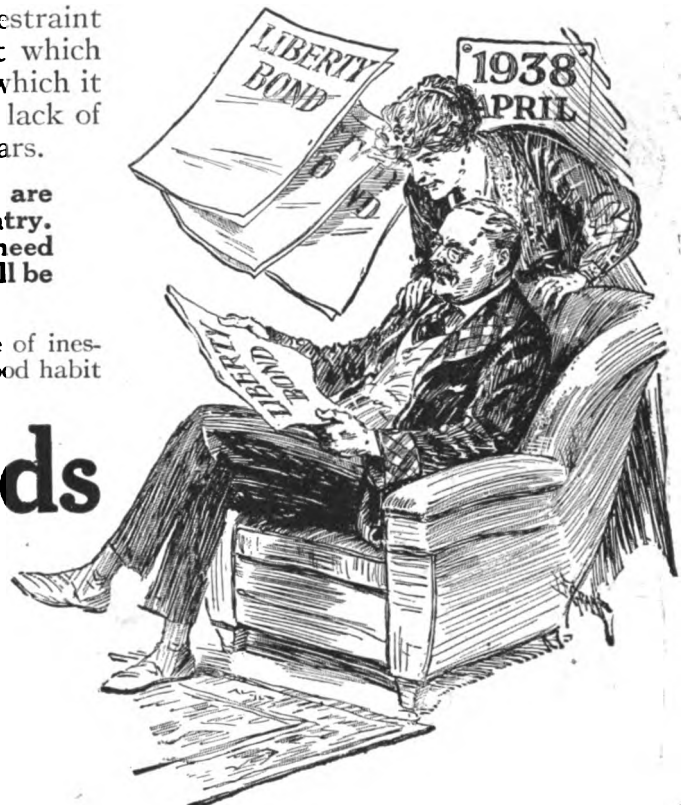
THE FRANCIS-RAND COMPANY

Mfrs. of

Cleveland

HANCOCK PRODUCTS

U. S. A.



When writing advertisers please mention Motor World—it identifies you



**"And there is a lot
more up the river
than has ever come
over the falls."**

This advertisement is published
by the

**PHILLIPS-BRINTON
COMPANY**

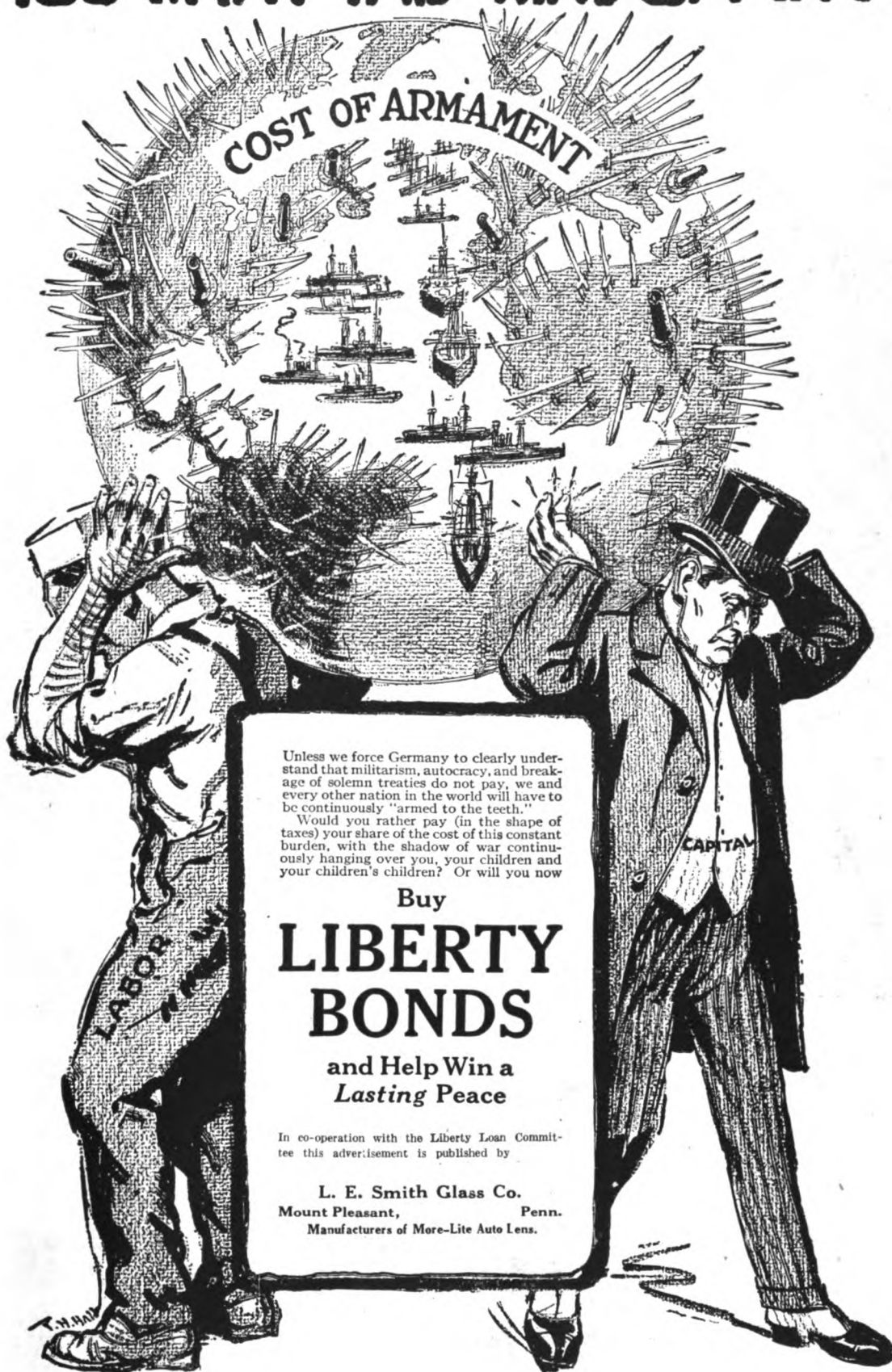
Manufacturers of

Philbrin Duplex Ignition

Kennett Square, Pa.

When writing advertisers please mention Motor World—it identifies you

DO YOU WANT THIS KIND OF PEACE?



When writing advertisers please mention Motor World—it identifies you



Choose!

"Lend Me Your Money
that I may equip my Army
and Navy to insure for you
and your children the bles-
sings of Liberty."

"Give Me Your
Money or Your
Life"

Invest now to the limit of your ability in

U. S. Liberty Bonds

The Kaiser calls us "a nation of dollar chasers." Let us show him that we know how to use those dollars in the defense of Liberty and the overthrow of Prussianism.

CONNECTICUT TELEPHONE COMPANY
MERIDEN CONN.

When writing advertisers please mention Motor World—it identifies you



"Paint your own car"

will be one of the slogans during the coming year of patriotic economies and scarcity of new cars.

Four automobiles in every five have never been painted since they left the factory.

Be the dealer in your town to supply the big demand for the quick, easy, reliable

Murphy Da=cote Motor Car Enamels

(Trade Mark)

Good enough for the professional painter.

Easy enough for the amateur.

Quick enough for either.

A great seller for the dealer.

Read our proposition to you on the next page.

Murphy Da-cote

(Trade Mark)

A full line of practical one and two coat Motor Car Enamels made by a manufacturer known the world over for his motor car finishing materials. Designed to give the inexperienced amateur a satisfactory job with little labor in one or two day's time at small cost.

What you get in addition to the goods :

1. Aggressive advertising.
2. A novel and handsome window and counter display. (See next page)
3. The catchiest booklet and color card ever put out for a line of Motor Car Enamels.
4. A shelf display that "speaks for itself." The label shows the color.
5. A generous profit.



"Murphy Da-cote

TRADE MARK

Motor Car Enamel

The motor fan can't resist the trick car showing three colors as he passes your window. When he pauses, he is caught and drawn into your store by the different colors on the labels.

"The label shows the color."

We have been told that this is one of the best window displays of the season. You will think so too. So will the car owner. When he enters your store, the shelf display of the different colored cans in different sizes is a powerful attention-getter. The whole story is on the label.

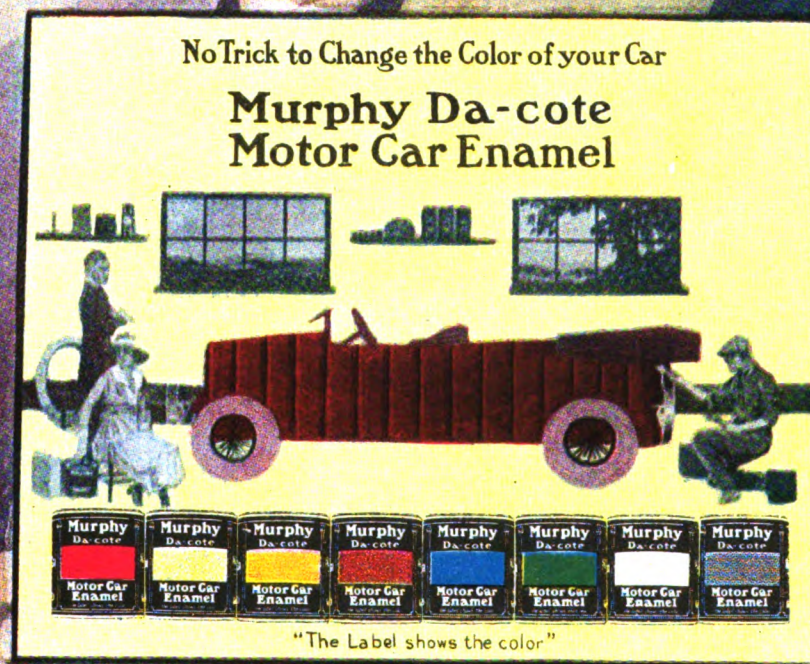
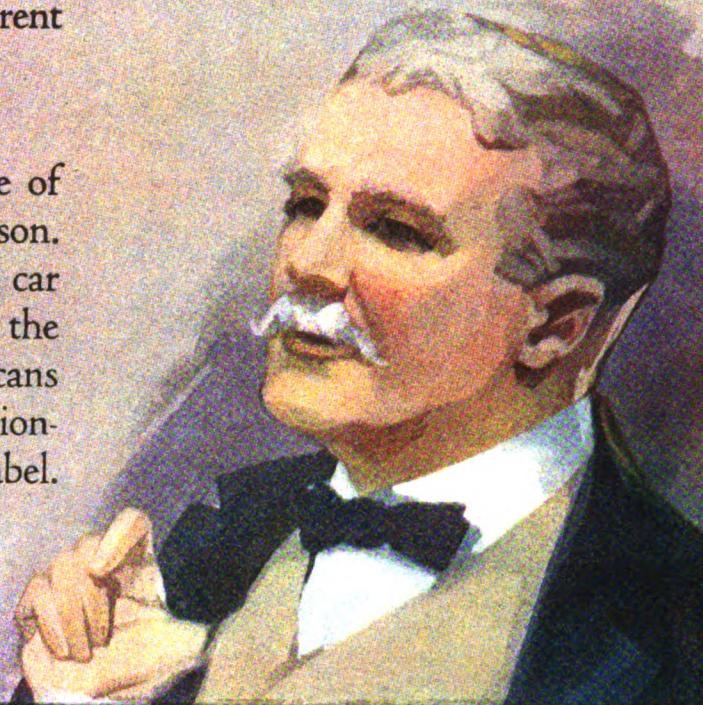
"Da-cote" tells him he can paint his car quickly.

"Murphy's" tells him it is made by an expert on vehicle finishes.

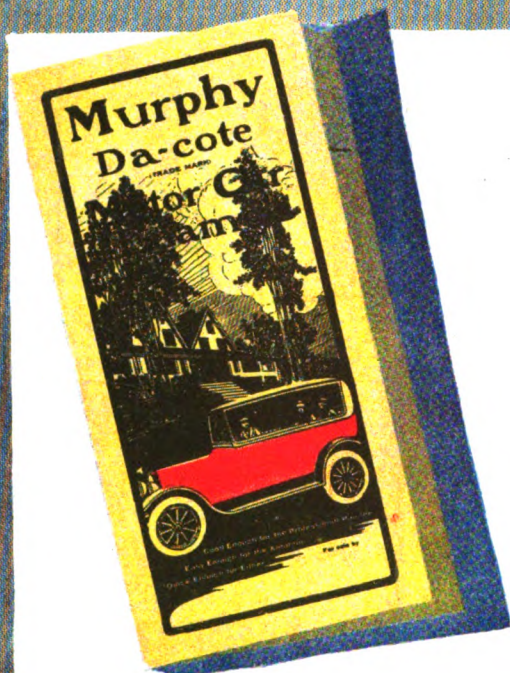
Complete directions are on the can.

The exact shade of the enamel is shown on the can.

If you wanted to, you could tell him to help himself while you waited on another customer.



Motor Car Enamel"

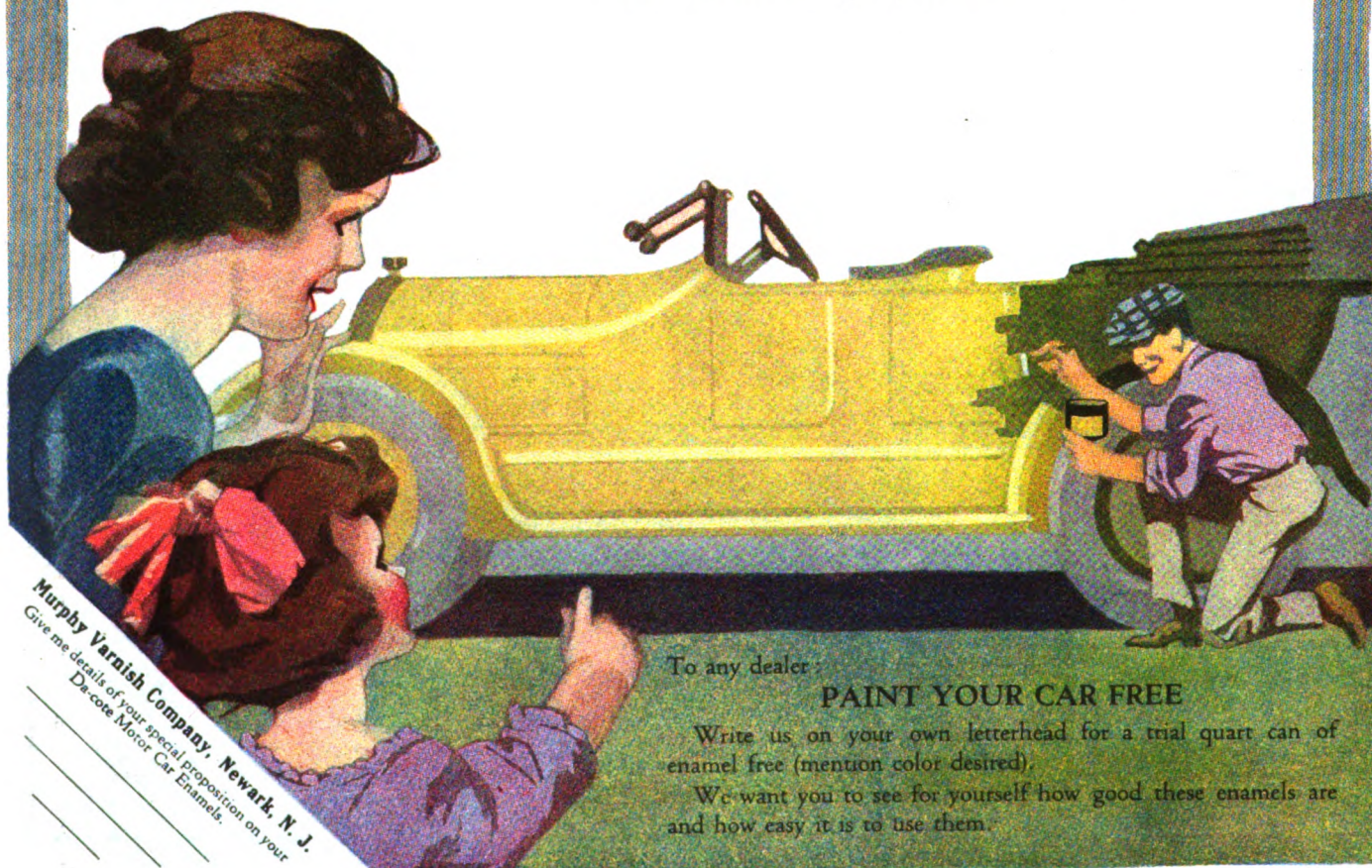


Murphy's Da-cote (Trade Mark) Motor Car Enamel

PUT a few of these cans on your shelves and in your windows, and show automobile owners **a way to be economical this year**, and still have new cars in appearance. You will get good pay for doing this.

Ask us:

"What is there in this Motor Car Enamel proposition for me?"



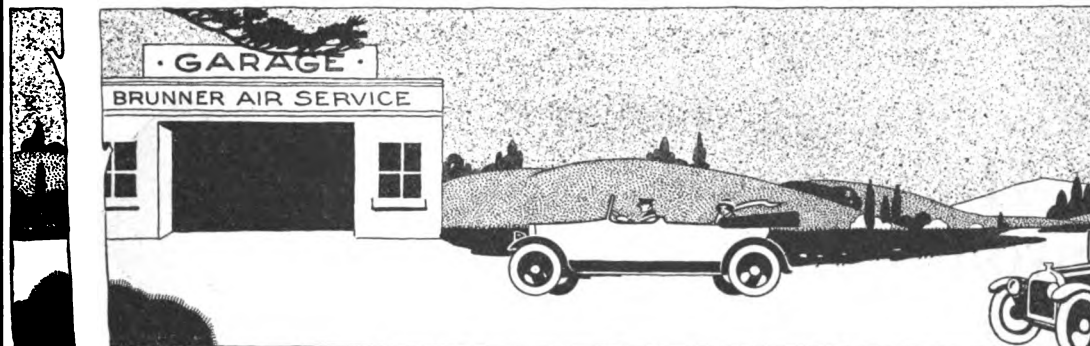
To any dealer:

PAINT YOUR CAR FREE

Write us on your own letterhead for a trial quart can of enamel free (mention color desired).

We want you to see for yourself how good these enamels are and how easy it is to use them.

Murphy Varnish Company, Newark, N. J.
Give me details of your special proposition on your
Da-cote Motor Car Enamel.



Are You Prepared for the Big Spring Drive?

It is only a matter of a few weeks now, Mr. Garageman, when the roads will be alive with motorists eager for service, and the most important service in the early Spring is your Compressed Air Service.



No. 66

WHEN "LAST SUMMER" TIRES BEGIN TO BLOW

In the early Spring, when the boys are trying to coax more mileage out of their "last summer" tires—then is the time your compressed air supply is taxed to the utmost and—then is the time you should be in position to make a favorable impression on the motorist by having your air supply ready to meet his demands.



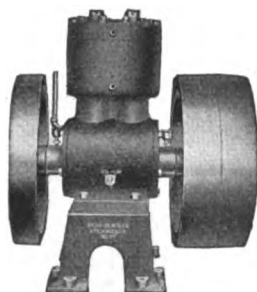
No. 50

Is Your Compressed Air Service? Going to Pass Muster This Spring?

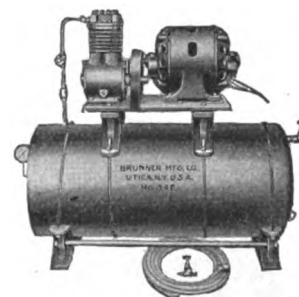
This is a question which should be most carefully considered by you just now, Mr. Garageman, because if you do not show the motorist that you are able to deliver the goods in the Spring he will not leave your garage with an impression which will prompt him to return for service and supplies during the summer.

THESE ARE DAYS OF PREPAREDNESS

And those among you who prepare for the big Spring drive will taste the fruits of victory—the best way to prepare is to install a Brunner Air Compressor in your Garage.

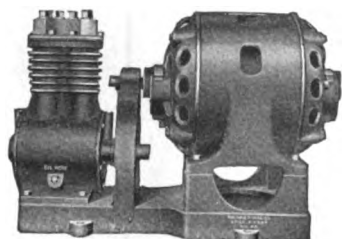


No. 17



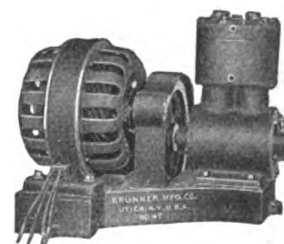
No. 542

INVESTIGATE THE **BRUNNER** AIR COMPRESSOR



No. 42

The Brunner is the pioneer of all Garage Air Compressors—it has been making good in the garage ever since the garage business has been a business—the Brunner Air Compressor is properly designed and built to suit the garageman's special requirements. No freakish attachments and no restriction of the lubrication to invite disaster but simply the same good substantial business proposition it has always been for the garageman who progresses with the times.



No. 47

Our new No. 15 Catalogue is the most complete and comprehensive book of its kind ever published. We will be glad to send you the catalogue and the name of the Brunner Jobber who covers your territory.



BRUNNER MANUFACTURING COMPANY

Main Office and Plant:
UTICA, N. Y.

Cincinnati Branch:
CINCINNATI, OHIO

"The Motorist Who is Brunnerwise—Knows Brunner Service Satisfies"



When writing advertisers please mention Motor World—it identifies you

This Man, a Jobber of Hardware and Automobile Supplies

says,—

“‘The Red Directory’ promptly locates for me the source of supply for any article in the accessory field.”

S E Rose
BARKER, ROSE & CLINTON CO.



A THOUSAND CATALOGS IN ONE

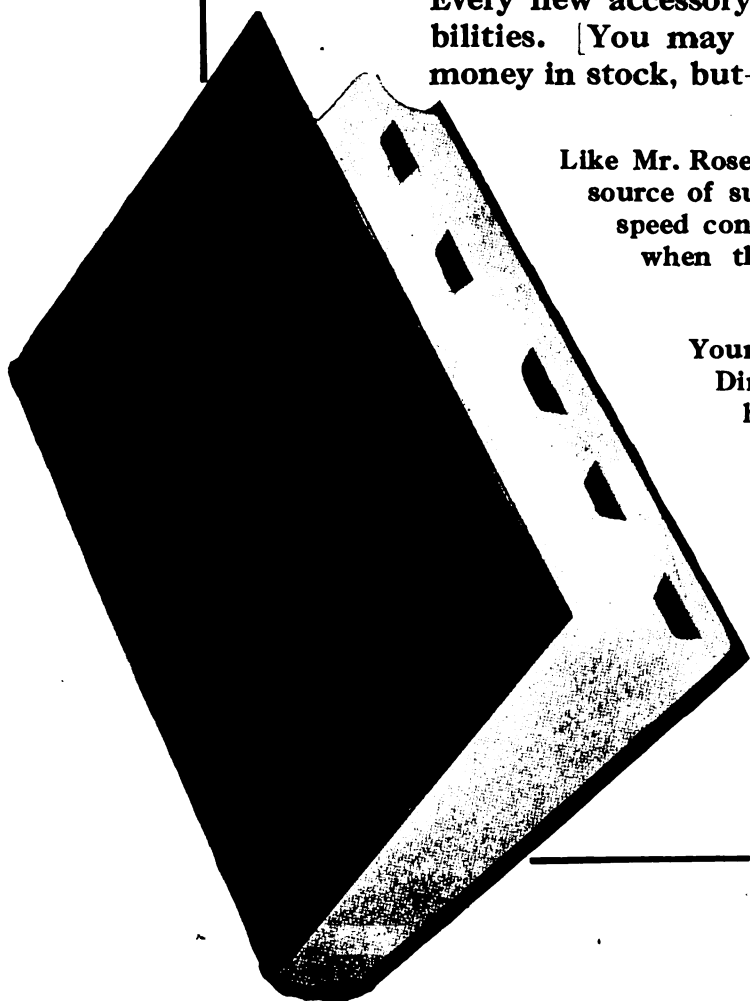
Every new accessory adds to your sales possibilities. [You may not want to tie up more money in stock, but—

Like Mr. Rose you can promptly locate the source of supply of that new bumper, or speed controller, or wind-shield rubber, when the chance to sell it pops up.

Your copy of The Automobile Trade Directory gives you this necessary help.

THE AUTOMOBILE TRADE DIRECTORY
ROBERT WOLFERS, President
243 WEST 39th STREET
NEW YORK CITY

*“It Hangs
Everywhere”*



When writing advertisers please mention Motor World—it identifies you



THE NEW HLB Junior Display Rack

Now Ready!—The *new* HLB JUNIOR Belting Display Rack

Fan Belting Sales can be greatly increased for dealers who stock HLB fan belting in this compact display rack—for the goods are out where every customer can see them. Many times motorists actually need new belts but overlook the matter because nothing is done by dealers to "refresh the memory." This new Junior display rack will serve as a constant reminder to forgetful motorists.

This rack will add to the appearance of your store. At a glance you can always see just how much stock you have on hand. With it your

belting stock is in one compact form, easily handled, and well displayed. Rack is 2 ft. wide, 1 ft. deep and 2 ft. 2 in. high. Made of wood, handsomely finished and surmounted by steel sign lithographed in colors.

The HLB Junior Rack will be furnished **FREE** to dealers ordering the general assortment listed below. This assortment has been made up after numerous investigations, and we feel that it comprises the proper sizes and lengths of belting that you need. Use the coupon and give the name of your jobber. Do it—today!

IT'S FREE Use This Coupon

Here is the assortment on the JUNIOR Rack

WETPRUFE Flat Fan Belting	VEE SOL (Solid "V" Fan Belting)
50 ft. roll 1-inch	50 ft. spool $\frac{5}{8}$ -inch
50 ft. roll $\frac{3}{4}$ -inch	
LEATHEROUND (Round) Fan Belting	VEE FLEX (Laminated "V" Fan Belting)
25 ft. spool 5-16-inch	50 ft. spool $\frac{5}{8}$ -inch
25 ft. spool $\frac{3}{4}$ -inch	25 ft. spool $\frac{3}{4}$ -inch

HIDE LEATHER & BELTING COMPANY
211 S. Meridian Street Indianapolis, U. S. A.

**Hide Leather & Belting Co.,
Indianapolis**

*Please send complete information about your Junior
Display Rack, together with details of your
attractive proposition to dealers*

When writing advertisers please mention Motor World—it identifies you

MANY of our dealers are assuring their customers of not less than 20 miles to a gallon of gasoline in the new Hupmobile.

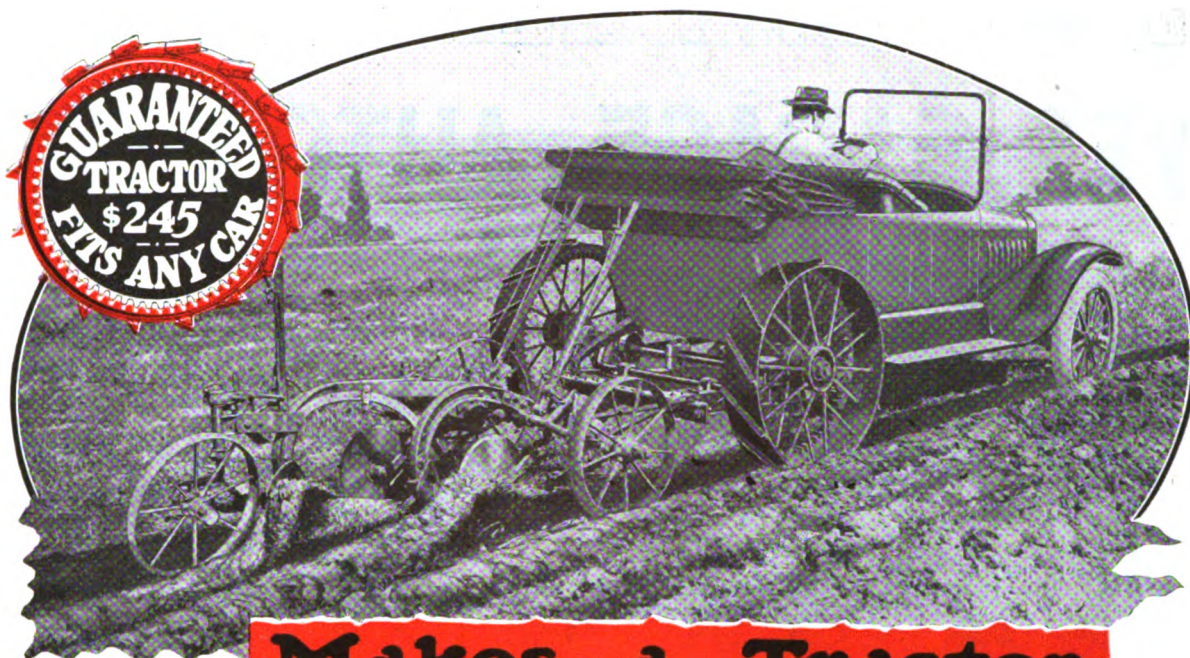
Records of individual owners with *The Comfort Car* are running far above that figure.

Wonderful riding ease, splendid steadiness and pick-up, and abundant power are accompanied in the new Hupmobile by the gratifying certainty of *marked economy*, not only in gasoline but in tire-mileage.

When writing advertisers please mention Motor World—it identifies you

**We
Have
Changed
the
Name**

from the Any
Auto Tractor
to Guaranteed
Tractor be-
cause the new
name carries a
fuller signifi-
cance of our
policy and the
merit of our
product.



**Makes a Tractor
of ANY Auto!**

\$1,519,000 Worth in 7 Weeks!

THE biggest sales success in many years. A record unprecedented in tractor history. Absolute proof that Dealers recognize the broad sales field for this remarkable machine—the only attachment that makes a Tractor of any car.

Country's Biggest Dealers Join Us

The very first announcement brought thousands of requests for territory. Every territory closed has been taken by the largest, liveliest, most responsible automobile and implement dealers. The very name of these dealers—the sound reputation for business judgment of their executive heads—is ample warranty for any other dealer taking on the *Guaranteed Tractor*.

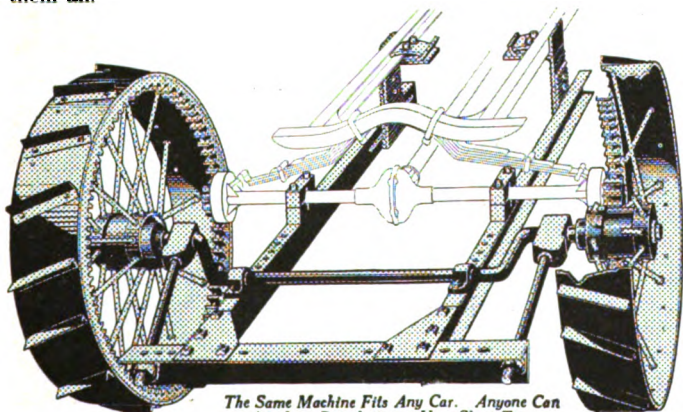
200% Larger Sales Field

The *Guaranteed Tractor* makes a powerful Tractor of any model Ford, Dort, Overland, Chevrolet, Dodge, Buick, Studebaker, Maxwell, Reo, Velle, Saxon, Hupmobile, Oakland, Grant, Allen, Briscoe and any other car.

Its adaptability to any car gives dealers a sales field 200% larger than Ford attachments—a virgin field of 6,361,502 farms. And it is the fastest selling attachment in the Ford field, too.

"Bigger Than the Auto Industry"

LITERARY DIGEST says: "We face the dawn of an industry that will be as big or bigger than that of the automobile." "Biggest contribution to agriculture—greater than McCormick's invention of the Reaper in 1831—will work as sweeping revolution in soil tillage." The Tractor industry has arrived. With a market of 6,361,502 farms it must soon become one of America's giant industries. And the *Guaranteed Tractor* is the big opportunity of them all.



The Same Machine Fits Any Car. Anyone Can Attach or Detach it in a Very Short Time

When writing advertisers please mention Motor World—it identifies you

Now a REAL Tractor!

Vital engineering improvements which positively insure efficiency in the field.

A highly developed cooling system—an air cleaner that strains the air of all dust—perfect traction in all soils—36-in. wheels with 10-in. tires—and 34 other features that make *Guaranteed Tractors* the leader.

The auto does no pulling—it is pushed ahead. The *Guaranteed Tractor* simply converts speed-power into pulling-power by a gear reduction of 11 to 1. There is no strain on the engine—it starts and runs continuously on high gear.

The automobile engine as a tractor is proving itself highly efficient on thousands of farms.

4 to 8 Horse Work

If the farmer uses a small car of 20 to 25 H. P. he gets 4 horse work. With a large car of 50 to 60 H. P. he gets 6 to 8 horse work.

He can do all farm work with *Guaranteed Tractor* 69% cheaper than with horses—one-half cheaper than standard tractors. Save \$225 on every 112 acres plowed. Save \$800 on every 80 acres plowed, disced and seeded. Save the wages of two men on every 80 acres plowed. Yet it costs but the price of one good horse.

NEW DEALER PLAN— RUSH COUPON

Territories are closing rapidly. The season is on. Our big sales plan makes it important that every dealership be closed immediately. Automobile dealers must get in the tractor line to make big money. Rush coupon or wire for territory reservation and big new dealer proposition. Learn why the foremost dealers are joining us daily.

Guaranteed Tractors, Inc.

Formerly Make-a-Tractor
Corporation of America

2700-02 Michigan Ave.
CHICAGO

M.W.

Guaranteed
Tractors, Inc.

2700-2702 Michigan
Ave., Chicago, Ill.

Gentlemen: Reserve this territory for us and send your big dealer proposition at once. We are organized to handle big sales in this territory.

We are Dealers' ...
Distributors' ...

Name _____

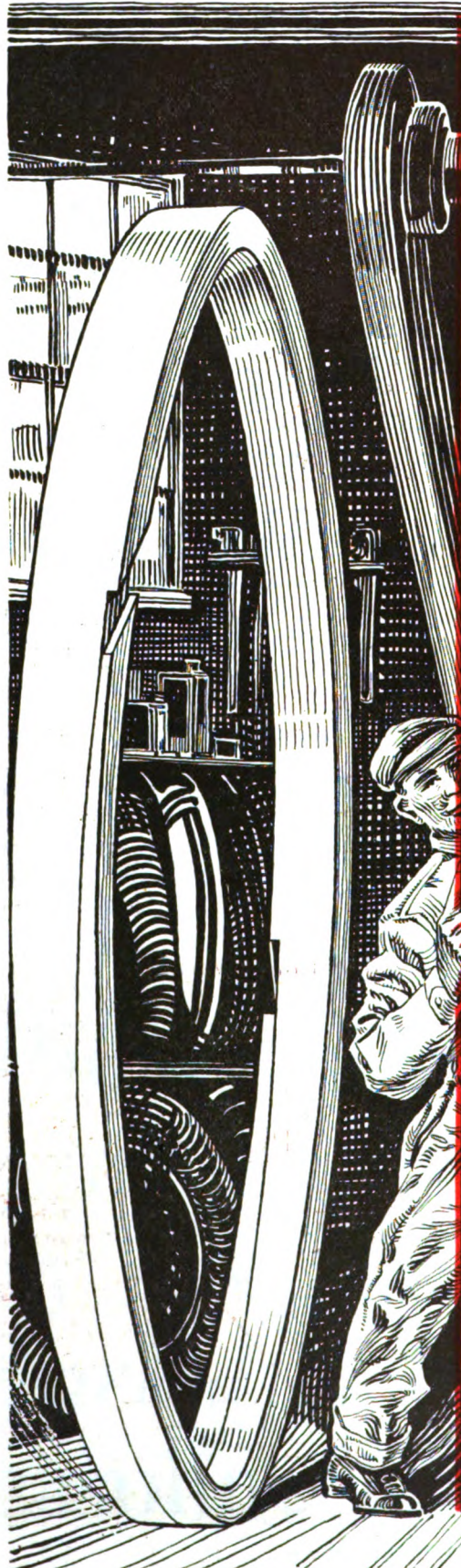
Address _____

City _____ State _____

Dealers and Distributors: Rush this coupon if you do not wire. It is the second best way to make sure of your territory.



YER, GARAGE, AUTO REPAIRII



**Open your door to
this opportunity.**

More than 5,000,000 cars are in use. Hundreds of thousands need new piston rings right now.

We are spending thousands of dollars to drive this fact home to every car owner. Our full pages or half pages in the

**Saturday Evening Post
Literary Digest Collier's**

are proving to motorists that it *pays* to put in gas-tight piston rings—and that the *best* place to go for new rings is to the garage that handles *Inlands*.

INLAND

1 PIECE PISTON RING

Open your door to this Inland opportunity. It will mean a far bigger over-hauling business for you. Our complete local plan, free for you, will bring *direct to you* the full value of our national advertising in your district. Get this now. Write us today.

Inland Machine Works,
815 Mound St., St. Louis, U. S. A.

Spiral Cut makes the Inland absolutely gas-tight. One-piece construction makes it low-priced. Equal width and thickness makes it strongest and most durable.



When writing advertisers please mention Motor World—it identifies you



Badger Seat Covers supply the beauty—the atmosphere of refinement and good taste motorists want at prices *within* their means. This means big Seat Cover sales—big money for Badger Dealers. A bigger, better, more profitable business.

For all makes of cars. Ready to put on. Guaranteed fit. No alterations necessary. Immediate shipments.

Dealers: Write for samples, prices and liberal discounts.

WISCONSIN AUTO TOP CO.
Racine, Wisconsin

BADGER

SEAT COVERS

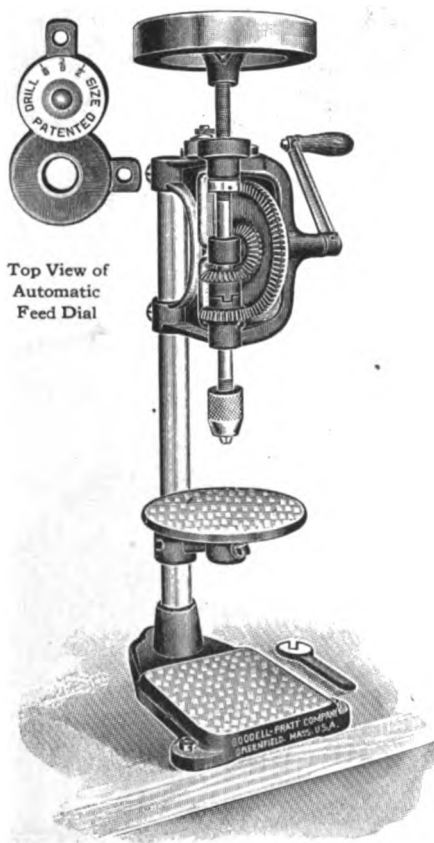
When writing advertisers please mention Motor World—it identifies you

GOODELL PRATT

1500 GOOD TOOLS

BENCH DRILLS

A NECESSITY
·MAKES THE GARAGE MORE EFFICIENT



The Goodell-Pratt Bench Drill No. 492, illustrated, is a good, strong, practical, well finished machine for drilling up to a $\frac{1}{2}$ inch hole.

The Patent Automatic Friction Feed is controlled by a Nut which can be set to regulate the pressure properly for the size Drill used, thereby saving drill breakage.

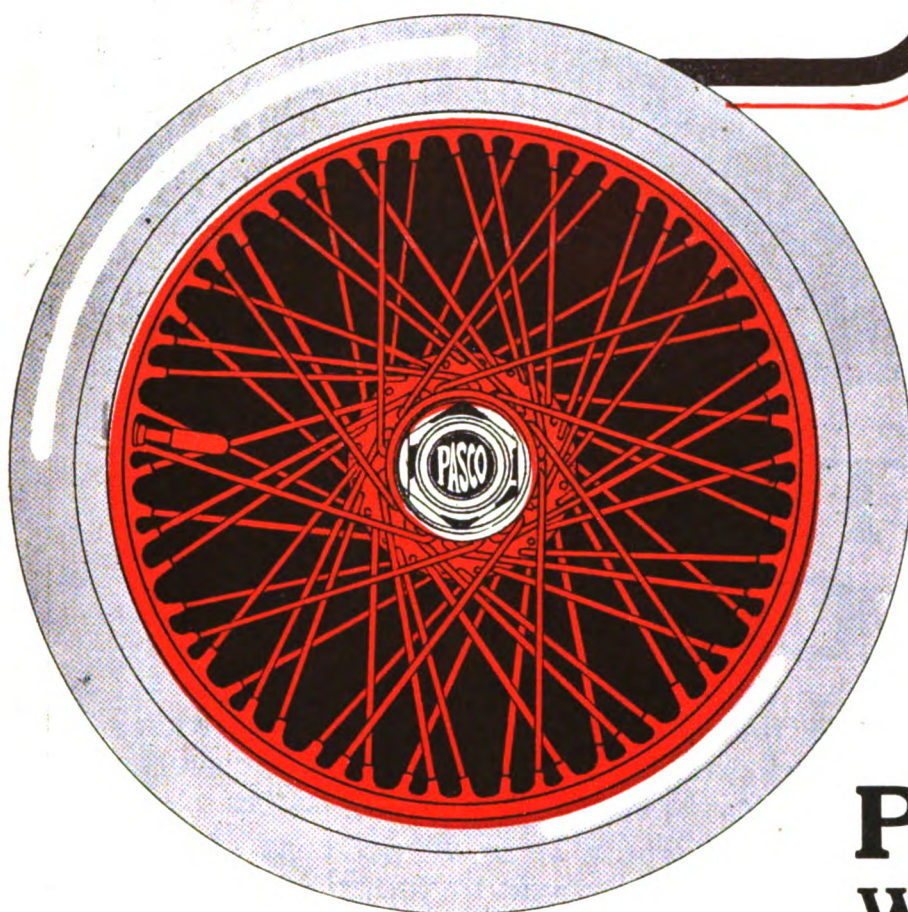
There are Two Speeds, changeable by turning Shifter Knob at the rear of the Frame. The carefully fitted Gears are cut from solid blanks.

The 7 inch Round Table, $4\frac{1}{8}$ inches from the Chuck, can be swung out of the way. The 6 x 7 inch Rectangular Table is 11 inches from the Chuck. Net weight of machine, 48 pounds.

Our Tool Book No. 13 describes our entire line of "1500 Good Tools." Send for it.

Goodell-Pratt Company
Greenfield, *Toolsmiths* Mass., U.S.A.

Stronger and Safer— The Pasco Wire Wheel



5-fold Resistance

Not only is the Pasco web construction stronger, but it is springier, more lively. Its strength is elastic, tough, resilient. There is nothing stiff or brittle about it. By actual test the Pasco has 5 times the resistance to breakage of an ordinary wooden wheel.

Locked to the Axle

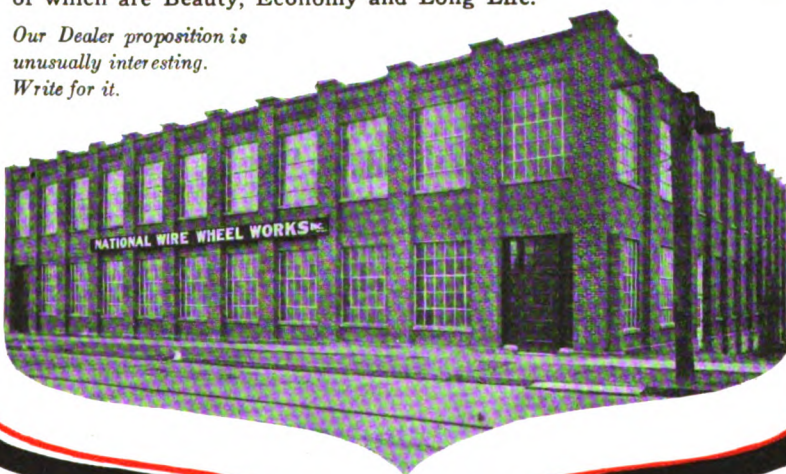
You can remove a Pasco Wheel in a few seconds—but no twist or turn or blow received in service on the road can loosen it from the axle. The hub cap is indestructible, and is locked to the axle by a device that belongs exclusively to Pasco.

PASCO Wire Wheels

*Practically all
types of Airplanes
are now using
Pasco Wire Wheels.*

Built by a company that has specialized in wire wheel making for more than a generation, Pasco Wire Wheels combine in their construction the results of practical experience and mature scientific designing. Their strongest attribute is Quality, the natural results of which are Beauty, Economy and Long Life.

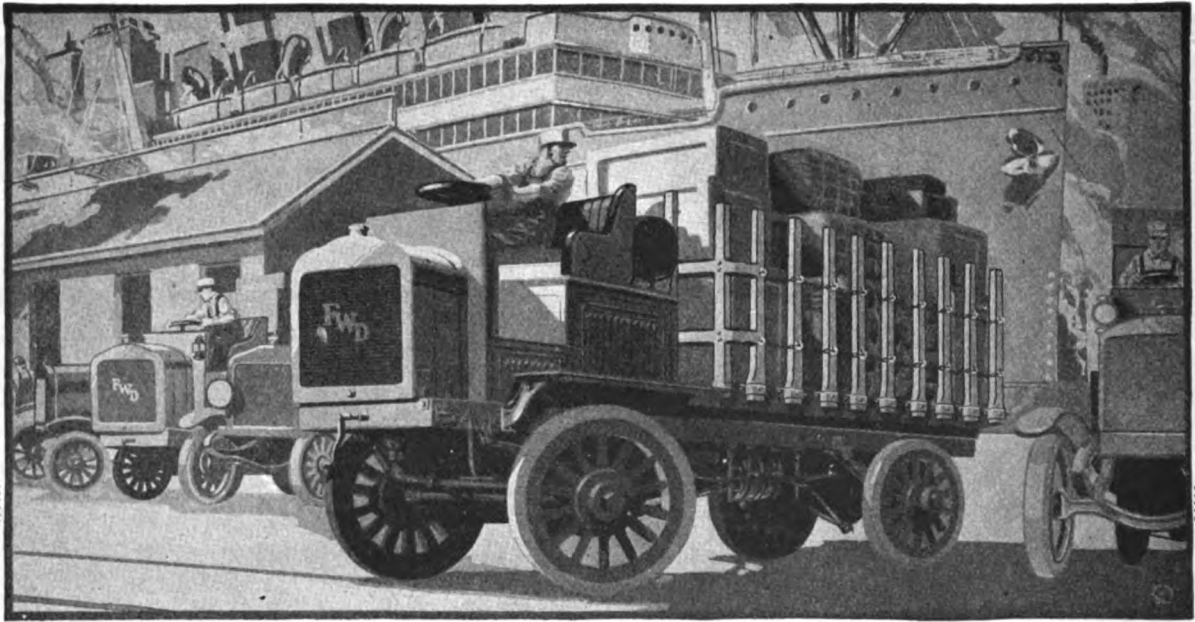
*Our Dealer proposition is
unusually interesting.
Write for it.*



**National Wire
Wheel Works**
(Incorporated)

Geneva, N. Y.
U. S. A.

When writing advertisers please mention Motor World—it identifies you



F-W-D Trucks in City Traffic

**Short
Wheel
Base
Permits
of
Easy
Handling**

IT is the successful application of the four wheel drive principle that allows the short wheel base—so convenient in city traffic.

In rear drive trucks 75 to 90 per cent of the load is on the rear axle to provide sufficient traction.

In F-W-D Trucks 45 per cent of the load is carried by the front axle.

This throws the load forward and a short wheel base is the result. Drivers of trucks in cities appreciate the convenience, the time saving and fuel saving in being able to turn short—to run in and out of loading spaces.

Business men can see proofs of economy of operation and dependability in demonstrations. Dealers have demonstrable selling points in F-W-D Trucks that make their agency a profitable one. A limited number of F-W-D Trucks will be available for industrial purposes. Catalog and dealers' arrangements on request.

FOUR WHEEL DRIVE AUTO CO.
Dept. P , Clintonville, Wis.



The New 1918
MOON CARS
Six-66

7 passenger Touring and Club Roadster

\$1985 *f. o. b. St. Louis*

These cars put this question point-blank: Why pay three thousand dollars for an automobile?

There are also the new Moon coupe, cabriolet, sedan and victoria, each with strikingly handsome individuality in every line of it, and each designed, built and equipped to deliver its individual surplus of easy-riding, smooth-running, stand-up value with characteristic *Moon* certainty.

The New Moon Six-36

\$1295 *f. o. b. St. Louis*

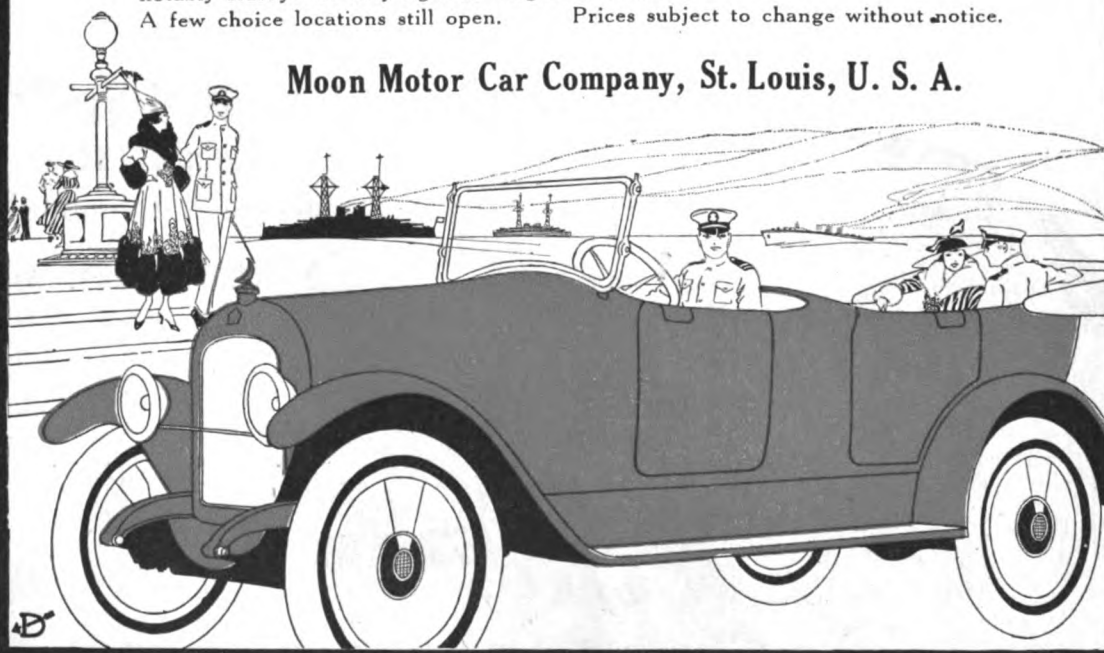
The enthusiasm with which this Moon Light Six was received all over the country fully vindicated our own judgment when we prepared to supply the demand by increasing our plant capacity.

The Six-36 is a Six in every sense of the term in its extreme smartness and mechanical superiority. It has a 114-inch wheelbase; Continental motor; double cowl; slanting windshield; instrument board of beautifully finished solid walnut, front and rear; Fedder radiator—honeycomb—stylishly extra high type; Timken bearings; Spicer joints. It is also just the car for the man of moderate means, because it is notably sturdy and very light in weight—*economical*.

A few choice locations still open.

Prices subject to change without notice.

Moon Motor Car Company, St. Louis, U. S. A.



SPILLMAN 4

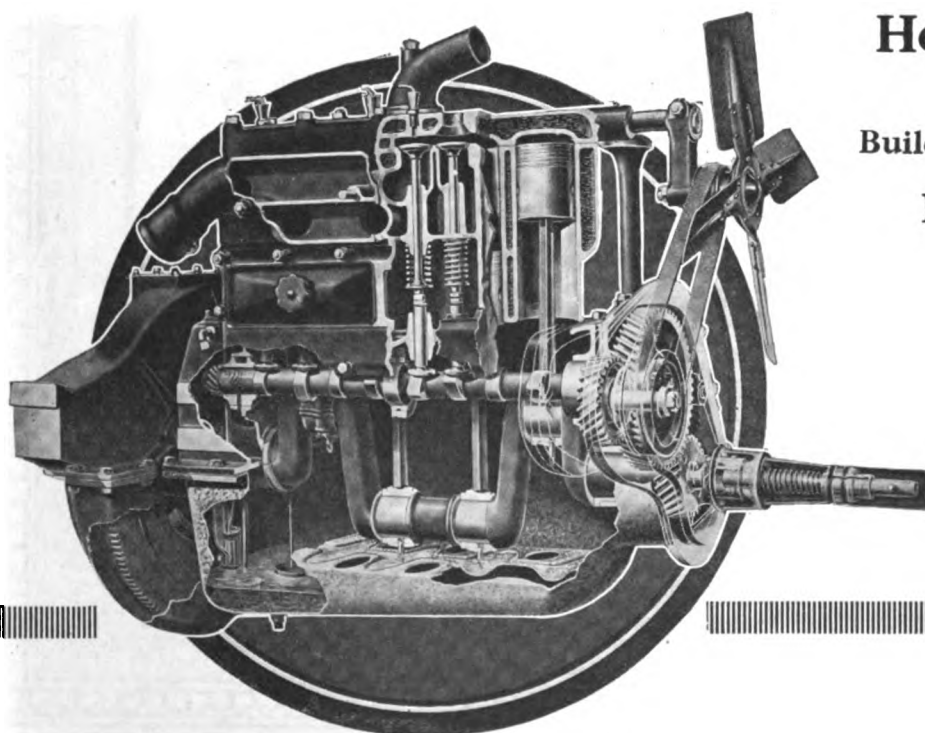
3 1/4 x 5 - 4 CYL

Quality is Economy

IF YOU ARE GOING TO BUY a 4-cylinder motor, get a SPILLMAN. Quality tells in a "4" as well as in an "8" or "12." Freedom from trouble, ease of running, positive cooling and lubrication, make for economy. And they are all the children of Quality.

SIMPLICITY OF DESIGN, perfect synchronization of parts, accessibility, rugged construction, are distinct attributes of the SPILLMAN "4."

BUT ITS BEST SELLING FEATURE and surest recommendation is its remarkable performance in actual service. For demonstrated power, speed, and flexibility it is unequalled in its class.



**Herschell-Spillman
Company**

Builders of Automobile Motors

North Tonawanda
New York

When writing advertisers please mention Motor World—it identifies you

*Old Doc O'Kleen Pays
For Part of The Meals Everywhere He Goes*



ECON-O-KLEEN Sales Grow Bigger Every Day

Break Into The Profits NOW



**"A \$1 Can of
ECON-O-KLEEN**

**Treats 112 Gallons
of Gasoline"**

—Doc O'Kleen



ECON-O-KLEEN has caught hold. Piles of orders—and RE-ORDERS—keep coming in. Motorists are asking for it **by name**. They've picked it for a live one, because it does what dealers say it will.

From the gasoline railroad business, ECON-O-KLEEN was forced into the automobile industry **by demand**—and in less than 4 months it is a going success—going better every day.

Well, over half of the total business of ECON-O-KLEEN is **re-order business**, from Jobbers, Supplymen and Dealers like yourself. You know **why** they re-order. It is because **their customers re-buy**.

USE THE COUPON NOW

—for free, complete details about ECON-O-KLEEN—that cleans out motors and keeps them clean. Or, if you enclose \$1, we will send you prepaid, trial can of ECON-O-KLEEN, on the basis of **satisfaction or your money back**.

Econ-O-Kleen Fuel Company
Thief River Falls, Minnesota

ECON-O-KLEEN FUEL CO.
Thief River Falls, Minnesota
Send me complete information and free illustrated literature explaining every reason and can of ECON-O-KLEEN. \$1 enclosed is for trial can of ECON-O-KLEEN. Money back if not satisfactory.

Name
Address
Check here if you are a
dealer ☐ Jobber ☐
or supplyman ☐
for confidential discounts.

When writing advertisers please mention Motor World—it identifies you



Round Units
for Punctures

Oblong Units for
Cuts and Tears

Mends Tubes in 5 Minutes

Complete (With 12 Patch & Heat Units) \$1.50

The Vulcanizer, 6 Patch and Heat Units of round shape for punctures and 6 of oblong shape for long cuts and tears are included in the outfit. Each unit is complete—ready to use. No gasoline, acid, cement or flame required.

The Patch and Heat unit is placed over the puncture—the vulcanizer clamped in position and a match applied. *In 5 minutes* you have a perfect, lasting, "feather-edge" repair.

The SHALER 5-Minute Vulcanizer sells itself. You only need to place the display case on your counter or in your window.

The 12 Patch and Heat Units that go with the outfit are soon used up—and the motorist comes back to you for more—at 75c a dozen.

This repeat business pays you a good profit and brings motorists to your place regularly—who will also buy other goods!

Place Your Order With Your Jobber NOW!

Don't delay! The enormous demand for SHALER 5-Minute Vulcanizers has exceeded our factory capacity to make deliveries. We are building a large 3-story addition to our plant—but to make sure of prompt shipments—place your order with your jobber now—specifying date of shipment desired.

Catalog describing the complete line of SHALER Vulcanizers for Motorists and Tire Repair Shops—Sent FREE on request.

C. A. Shaler Company, 410 Fourth Street, Waupun, Wis.

**A Match
is all You Need**

**To Make
Perfect
Repairs**



When writing advertisers please mention Motor World—it identifies you



Don't let fuel bills balk your motoring pleasure. No need for it. No excuse for it. Equip your Ford with a

New Stromberg Carburetor for Fords

It will solve the stubborn cost of operation problem at once and for all time to come. You can't deny that. You shouldn't even doubt it for a second. The proof is too conclusive—the New Stromberg Carburetor established—and still retains the World's greatest Ford economy record—

37 $\frac{4}{10}$ Miles on a Gallon of Gasoline

—in an official test. Right now—thousands of Fords are being run at savings that should *startle* you into purchasing a New Stromberg

Carburetor—*immediately*. Order NOW—direct from this ad. Enclose purchase price, \$20.00. Put it to a

10 DAYS' TRIAL

Keep strict track of the gas used. Then with the figures before you—if you are not satisfied—if you don't feel and *know* that it is a profitable investment—an *immense* money-saver—send it back and purchase price will be refunded and no "questions asked." Remember, it's all up to you. You set your own economy standard—

if the New Stromberg doesn't come up to it—your money back. No risk. Send today. Keep fuel bills within your means. Get desired mileage *without* purse pinching. Feel the thrill of thrift that springs from *knowing* that you are getting greatest value for your money—most miles per gallon. Free Literature—on request.

STROMBERG MOTOR DEVICES COMPANY, 64 East 25th Street, CHICAGO, ILLINOIS

DEPT. 328

New STROMBERG Does it! CARBURETOR

When writing advertisers please mention Motor World—it identifies you

A TIP from "JEM COE" The Traffic Cop



"Jem Coe"

says

"Sell Them

Rear

Bumpers

—the

Front

Bumpers

Will

Sell

Themselves"

"It oughtn't to take much salesmanship to convince a man that his car needs a *rear* Bumper even more than it needs a front one," says JEM COE.

That is the very selling-idea that is landing so much *double-sale* Bumper business for Gemco dealers.

GEMCO advertising, in great national periodicals, is harping on the need of *rear* Bumpers—making it easy for dealers to sell *two* GEMCO Bumpers to a customer.

Backing up this advertising is the established superiority of the GEMCO line—of GEMCO End-Thrust Construction.

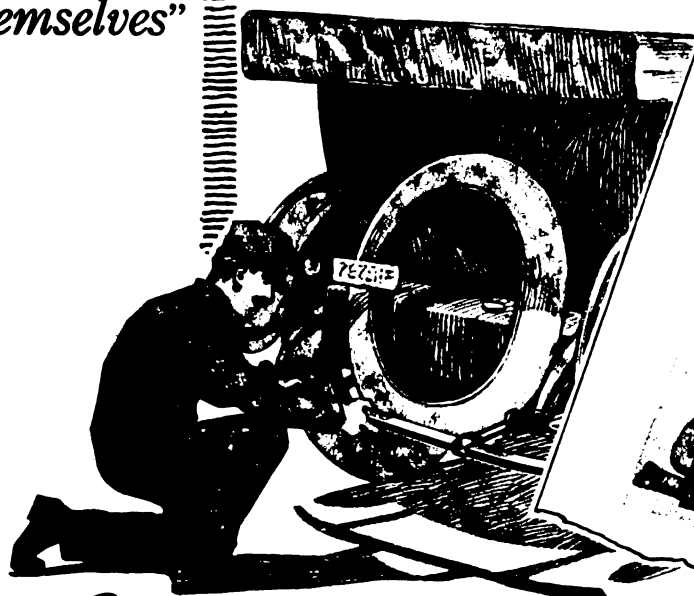
You need these bumpers in your business! They come in Diamond and Channel Bar types to fit all cars.

Write, today, to your jobber or direct to

Gemco Manufacturing Co.
756 South Pierce St., Milwaukee, Wis.

Gemco
MILWAUKEE
TRADE MARK

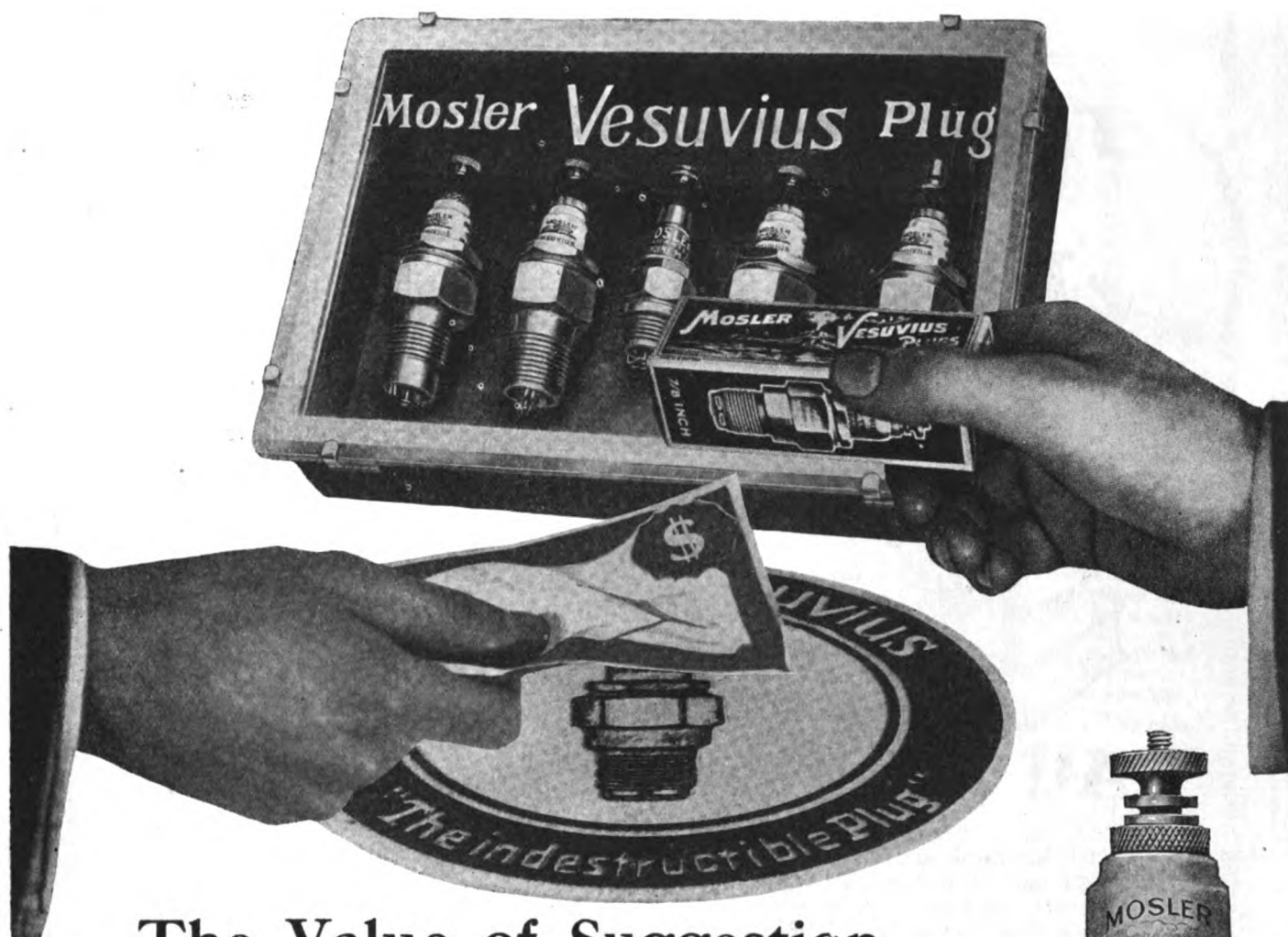
End Thrust Bumpers



Typical
Literary Digest
advertisement
much reduced

Let **Gemco** Ads Send This Trade Your Way

18 Years of Leadership in Spark Plug Manufacture



The Value of Suggestion

MANY a motorist on his shopping visit will overlook something he needs—*so forcibly.*

unless he is reminded. That's human nature.

But he won't forget the fact that he should have Vesuvius Plugs if you have a set of the Mosler Vesu-
A. R. Mosler & Co.,

**MOSLER
VESUVIUS
PLUG**

Big national advertising is making the Vesuvius the Standard Plug at the Standard Price—\$1.00.

New York City

Let these displays become your silent salesman, and lend their powerful aid in bringing the cash across the counter.



Manufactured under A. R. Mosler's Patent No. 1,218,298, Date Mar. 6, 1917
Other Patents Pending

— THE INDESTRUCTIBLE PLUG GUARANTEED TO OUTLAST THE MOTOR —

When writing advertisers please mention Motor World—it identifies you

This Coupon →

Will Bring You

← These Books



American Technical Society, Dept. A 1913B Chicago, U. S. A.

Please send me a set of Automobile Engineering for 7 days' examination, shipping charges collect. If I decide to buy, I will send \$2.00 within 7 days and the balance at \$2.00 a month until \$17.80 has been paid. Then you will send me a receipt showing that the books and consulting membership are mine and fully paid for. If I think that I can get along without the books after the seven days' trial, I will return them at your expense.

NAME

ADDRESS

REFERENCE

TO those who fill in and mail the coupon immediately we will send a complete five-volume set of **Automobile Engineering** without a penny's deposit. Examine them—study them—use them as if they were your own for an entire week. After the trial—if you think you can get along without the books—return them at our expense. If you keep them, pay the specially-reduced price at the rate of **only 50c a week**. But you must act now! The rising cost of paper and binding materials won't permit us to continue the present low price much longer.

All About Auto Repairing

No car owner, chauffeur, garage owner or repairman can afford to be without a set of **Automobile Engineering**. It is just off the press and answers fully 10,000 questions on the repairing of all types of pleasure and commercial cars. Almost two entire volumes are devoted to ignition, starting and lighting systems. Welding, vulcanizing and public garage equipment and operation are thoroughly covered. Five thick volumes, 5½ x 8½ inches, flexibly bound in genuine morocco, gold stamped. 2,400 pages; 2,100 illustrations, diagrams, etc., that make difficult points as simple as A-B-C. Written in plain, easily-understood English; carefully cross-indexed for quick reference.

What the Books Cover

Explosion Motors, Welding, Motor Construction and Repair, Carbureters and Settings, Valves, Cooling, Lubrication, Fly-Wheels, Clutch, Transmission, Final Drive, Steering, Frames, Tires, Vulcanizing, Ignition, Starting and Lighting Systems, Wiring Diagrams, Shop Kinks, Commercial Garage Design, Equipment and Operation, Electrics, Storage Batteries, Care and Repair, Motorcycles, Commercial Trucks, Glossary.

Send No Money!

Shipped for 7 Days' Examination

Remember, you don't have to send a penny. Just fill in and mail the coupon and the books will be shipped to you at once, express charges collect. If they fail to meet with your expectations, return them at our expense. If you keep them, send \$2.00 within seven days and \$2.00 a month thereafter until the rock-bottom introductory price of \$17.80 has been paid. This is \$7.20 less than the regular price of \$25.00.

Year's Consulting Service FREE

With each set we give you, absolutely free, a year's Consulting Membership. The regular price is \$12.00, but you get it free with the set. Put your perplexing problems up to a staff of automobile experts. Ask them as many motor questions as you wish for a whole year free!

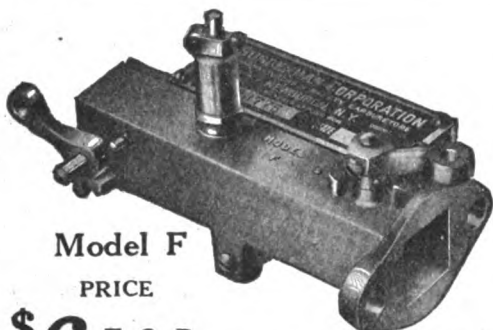
Your name and address on the coupon brings the five books to you, express collect, for seven days' trial. This offer is open to every person within the boundaries of the United States and Canada. Act quick—while the offer lasts. Send coupon today—NOW!

AMERICAN TECHNICAL SOCIETY

Dept. A 1913 B
CHICAGO, U. S. A.

SUNDERMAN

Vacuum Carburetor



Model F

PRICE

\$6 F. O. B.
Newburgh

For Ford, Metz
and Saxon Four

DEALERS have a splendid opportunity this year to do a real business on the Sunderman Carburetor.

Because the decreased production of new cars will make owners hold on to last year's car.

An owner who can afford to buy a new car but can't get it will be extremely anxious to buy anything that will keep up the power, speed and economy of his car.

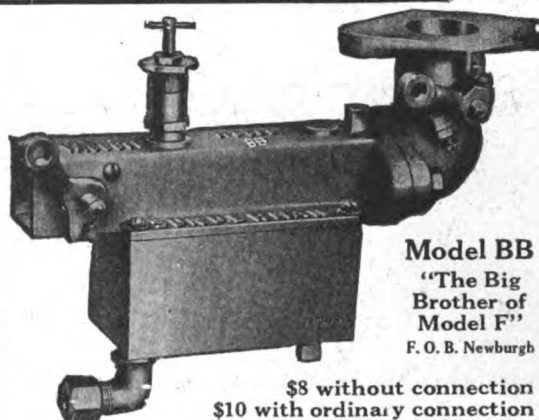
This is particularly true of Fords. The most recent announcement shows that the Ford production will be cut 50 per cent.

There are nearly 2,000,000 Fords running now. These are all immediate prospects for our Model F, because they need it to get full Ford efficiency.

Model F gives more—it gives greater power, more speed, a wider flexibility, a better pick-up, greater hill-climbing ability to any Ford—and at the same time saves from 30 to 50% in gasoline.

Ford, Metz and Saxon owners will gladly buy this splendid carburetor from you, Mr. Dealer—if you have it. Simple in operation, easy to install and profitable to sell.

Send us an order NOW for one Carburetor—it will convince you.



Model BB

"The Big
Brother of
Model F"

F. O. B. Newburgh

\$8 without connection
\$10 with ordinary connection
\$12 with larger connection

WHAT Model F does for smaller cars Model BB does for larger cars supremely.

There is no doubt that Model BB can decrease the gasoline consumption on any car on which it is installed. Our claim of 30 to 50% saving is extremely modest, if the unsolicited testimonial letters which are in our files are any evidence.

Those letters mean that their writers are getting that saving—in many cases a greater saving.

And in making this saving we do not sacrifice anything—rather do we increase the efficiency of the motor on every point—in power, speed, hill climbing, flexibility, pick-up, getaway and idling.

Model BB is easy to install—simple in mechanism and requires the minimum of adjustment.

Its price is out of all proportion to its value, as carburetor prices go. It represents manufacturing cost, with only a fair manufacturing profit added.

The dealer gets his proper percentage and volume of profit.

But the great profit goes to the car owner—in gasoline economy and vastly improved motor efficiency.

A finer value for the owner—a better proposition for the dealer does not exist to-day.

Order a Model BB at once—and see how its performance equals our promise.

SUNDERMAN CORPORATION

9 Chambers Street, NEWBURGH, N. Y.

STANDARD



Toledo



Cincinnati



Flint



Connersville

A Dependable Source of Supply

A company is known by the customers it keeps.

The great majority of representative manufacturers of motor cars, motor trucks and other finished products of the automotive industries are our steady patrons.

All the resources of an extensive

and efficient organization, including:

Large Manufacturing capacity
Well grounded engineering
Thorough laboratory work
Ample capital and
The economies of large buying power
Advantages of expert traffic management

Standard Parts For Motor Cars, The Famous

Axles

Axles (dead rear)

Axles, trailer

Rock Bearings

Hubs

Perfection Springs
(regular and thin leaf)

Perfection Heaters

Rims—clincher, detachable and demountable for single and dual equipment

Clincher Rims

Detachable Rims for Wire Wheels, special

Millimeter Rims, all types

Rim Tools

Flanges and Fittings Solid Tire Demountable Equipment

Tire Bases in Demountable and Pressed on Channels

We also manufacture parts for Airplanes, Tractors, Motorcycles,

The Standard Parts Company,

When writing advertisers please mention Motor World—it identifies you



for the Automotive Industries

Pleasant sales relations, and Both length and breadth of experience, are placed at their disposal.

Standard Parts products have contributed to the growth of many manufacturing enterprises. Similarly, these have contributed to the growth of the Standard Parts Company.

Trucks and Other Vehicles

Stanweld Products Including:

Brake Rod Assemblies, complete
Starting Cranks
Electric Welding of Parts
Exhaust Tubes
Forgings for Convertible Trucks
Bands S. A. E.
Formed Tubing
Ignition Wiring Tubes
Lamp Brackets
Mast Sleeves

Oil Tubes
Radiator Rods
Starting Gear Rings and Boxes
Straight Steel Tubing
Steering Gear Tubing
Tail Pipes
Torsion Tubes
Truss Rods
Tubing
(straight and formed)

Bicycles, Fire Arms, Carriages, Wagons and other vehicles

Executive Offices, Cleveland, Ohio

There's money in the Maxwell Truck. Thousands of dealers will divide millions of profits this coming year—get some of it.

Here's a truck that pays its way from day to day and, besides, earns back its cost within a year. Its repair bills are a joke—gas consumption, 16 miles to every gallon—a tire niggard—so easy to run and keep in order that boys and women can drive it with ease—a truck with all essential features of the \$5000 five-ton leaders: worm drive, electric lights and generator included, which you can retail at \$1085—several hundred dollars less than any other truck of similar capacity.

10-foot loading space, 2500 pounds in weight, but built so cunningly, so honestly, so brilliantly that freight which would stagger a brewery team won't feaze it. A sound pair of horses is more expensive to buy and far dearer to board.

Goes wherever a delivery wagon can travel, and travels where heavier trucks won't follow. Can be sold wherever there's a sign in sight. Little business can't afford to be without it and big operators would rather have a fleet of Maxwells than costly five-tonners which can't serve half so many purposes.

Secure the Maxwell truck agency and get the bank balance habit.

MAXWELL MOTOR COMPANY, Inc., DETROIT, MICH.



The Tire It PAYS to Handle



**6000 Miles
of Genuine Wear**

To the Dealer the choice of a tire is of utmost importance because on this more than on any other accessory or part he pins his reputation. Because we are confident that Century-Plainfield Tires are the best tires that can possibly be produced and because we know that our confidence is based on indisputable evidence—we are content to present without rhetorical flourishes these plain, simple facts.

Century- **-PLAINFIELD** *Tires*

In the first place, the very best materials go into Century-Plainfield Tires. We've been scrupulously particular about that. We recognize that the best tire can only be made when the finest raw materials are used in its manufacture. Anything else is a compromise—and a compromise is unknown in the manufacture of a Century-Plainfield tire.

The making of Century-Plainfield Tires is presided over and executed by men who have had long, thorough training and experience. We've combed the industry for tire experts, and the result is a

system of manufacture which is dictated by the last word of science and practice.

A complete and modern equipment, which admits of no alibis for poor workmanship, completes our list of purely physical reasons for Century-Plainfield supremacy.

The Century-Plainfield dealer is backed to the limit in every way. On actual tire performance, which means repeat business, and on unfailing service, which makes for quick, satisfactory deliveries, advertising assistance and countless other lesser essentials—his future is assured.

Some certain Century-Plainfield agencies are yet open.

Century-Plainfield Tire Company

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive Manufacturers of the RIMCO Rubber Products by the

Plainfield

ELCHEMCO Process

New Jersey

When writing advertisers please mention Motor World—it identifies you

The MUNGER "ALWAYS TIGHT" PISTON RING OUTFIT—

8 "Always Tight" Rings
(Regular Size)
4 "Always Tight" Rings
(Overwidth)
1 Regrooving Tool
1 Ring Insertion Tool



MUNGER "Always Tight" Piston Rings

List price for all sizes
up to 3 3/4 in. diameter,
\$1.25 per ring.

With each complete outfit of rings a *Munger Piston Re-grooving Tool* and a *Munger Ring Insertion Tool* are supplied without extra charge.

NEVER LOSE THEIR COMPRES-
SION—because the Munger "Always
Tight" Expansion Joint compensates
for wear as it occurs and always remains
gas tight until the rings are worn out.
Gas cannot escape under, around or
through them. It is easy for even a
novice to slip them into place over the
Munger Ring Insertion Tool. With
the *overwidth* rings and the Re-groov-
ing Tool which accompanies each out-
fit, worn grooves can be fitted perfectly
without expensive lathe work, and with-
out even disconnecting the piston from
the connecting rod.



Ready to insert the Munger Re-grooving
Tool to true-up a worn piston groove

The Munger Re-grooving Tool in
position for cutting. Testing width of
groove with an over-width ring

A Munger "Always Tight" Piston
Ring being slipped over the Munger
Ring Insertion Tool

Showing how easily Munger "Always
Tight" Piston Rings can be placed in
the piston groove with the Munger
Ring Insertion Tool



The MUNGER
"Always Tight"
expansion joint

Accessory Dealers and Garage Men!

Any jobber will supply you
with Munger "Always
Tight" Piston Rings.
[Order them now!]

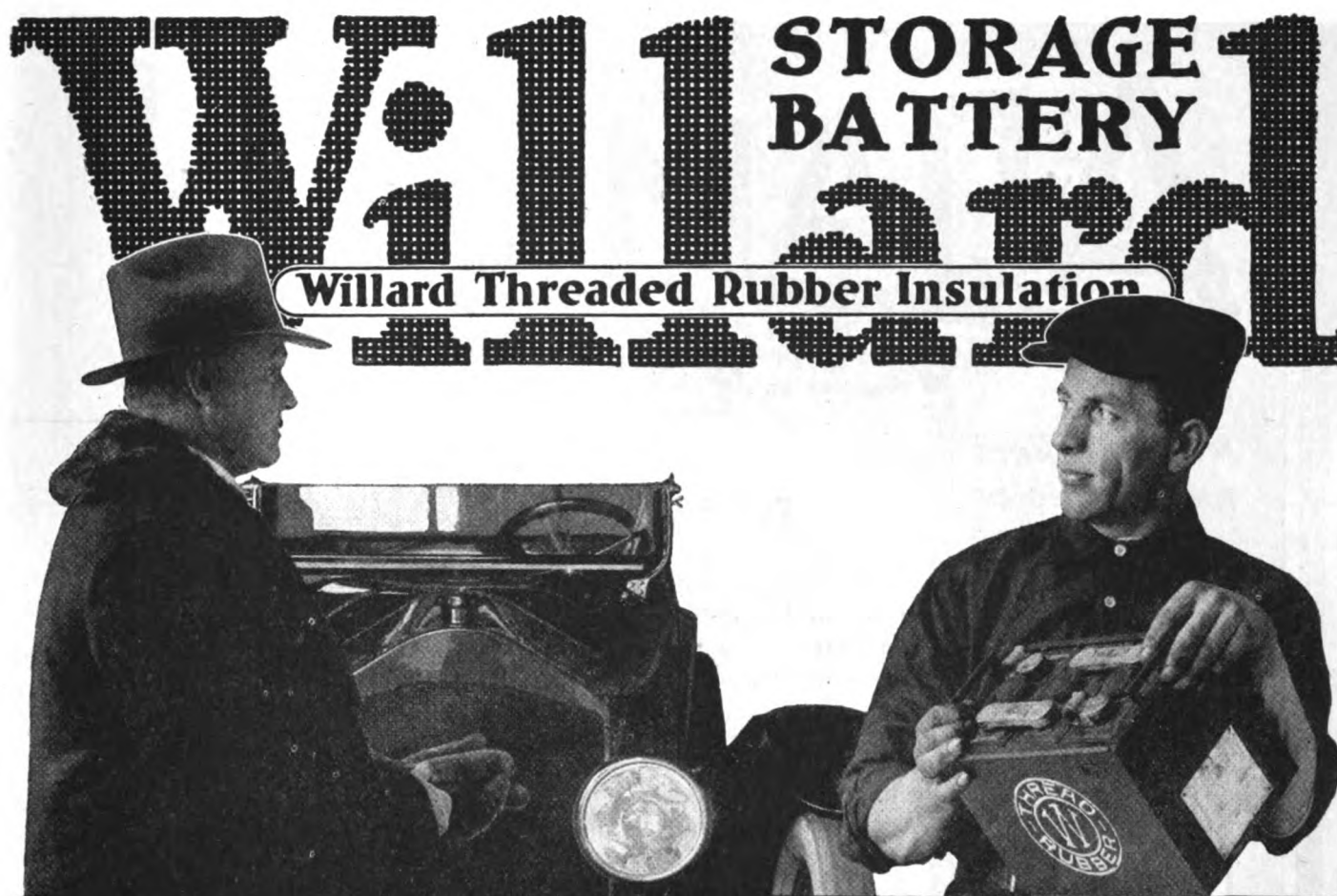
Splitdorf Electrical Co. Newark, New Jersey

Splitdorf Branch Houses and Service Stations:

Atlanta, 10-12 E. Harris St.
Boston, 68 Brookline Ave.
Chicago, 2613 So. Mich. Ave.
Dallas, 402 S. Ervay St.
Detroit, 1295 Woodward Ave.
Kas. City, 1827 Grand Ave.
Los Angl's, 1215 S. Hope St.
Minpls., 816 Hennepin Ave.

Newark, 278 Halsey St.
New York, 7 West 61st St.
Phila., 210 N. 13th St.
Pittsbgh, 5943 Ellsworth Ave.
San Fran., 1022 Geary St.
Seattle, 1628 Broadway
Toronto, 469 Yonge St.

When writing advertisers please mention Motor World—it identifies you



"Is There Really Much Difference in Batteries?"

The answer is easy, for any dealer or car owner who distinguishes between the *big things*, on which battery life and efficiency depend, and the *little details*, which are less important individually, though taken all together they make considerable difference between high-class, well-built batteries on the one hand and cheap batteries on the other.

Take the little things first—strength and durability of box and jars, size of terminals, quality of sealing compound, careful selection, testing and mixing of the lead oxides for plates, design of grid, and so on.

Which battery has the biggest and highest average of all of them?

Isn't it logical to suppose it is the battery which is built by the

largest and oldest builder of automobile starting and lighting batteries—with the widest experience and most complete facilities?

—the battery which has *year after year* been used as standard equipment by *about 85% of all car-builders*?

Such leadership could not be established and maintained except by superior quality in every detail of design, material and workmanship.

And now consider the *big* difference—one on which the life of the current producing plates is directly dependent—INSULATION.

Willard Threaded Rubber Insulation

The "Still Better Willard" has Threaded Rubber Insulation between its plates.

It is one of those rare discoveries that go to the very heart of the battery—transforming it into a newer, still better product.

It is a thing battery engineers wanted for years—a really practical *hard rubber* protection for battery plates.

All sorts of ways have been tried to devise a rubber insulation that would preserve the superior insulating qualities of rubber *without* either *decreasing the voltage* or *increasing battery size and weight*.

The problem was to find the proper method of allowing the battery solution to *pass through* the insulation, this being necessary to assure the proper voltage.

Willard found the answer by piercing the hard rubber insulation with 196,000 tiny threads.

The results have been so remarkable, the demand for the Still Better Willard has been so insistent—that you owe it to yourself to get the facts at first hand.

Call at the Service Station and let me show you the battery. Meantime, write Willard Storage Battery Company, Cleveland, for their interesting free booklet, A-1, "The Story of 196,000 Little Threads."

Willard Service.

ADAMSON

THE COMPLETE LINE OF
VULCANIZERS

*Money Makers
for the Dealer*



MODEL "E" \$1.00

5-Minute Vulcanizer
Uses Adamson Dry Fuel
or gasoline. Repairs tube
punctures permanently in
5-minutes.



MODEL "T" \$1.50

For ordinary repairs on in-
ner tubes.



MODEL "U" \$2.00

Repairs tubes and cases.
Mends tread cuts and small
blow-outs.



Write for Adamson store
displays and dealer helps

DEALERS:

There's an Adamson for every kind of tube and casing repair that a motorist can make. You needn't miss a single sale when you stock the Adamson line.

The high price of tires and tubes and the nation-wide demand for Conservation will practically double the number of Adamson users—now over a million.

To show Adamsons is to sell them. Every motorist knows they are easiest to use, quick and sure in results, and make the strongest possible repair.

Adamsons cost least to buy and operate; any model will use common gasoline—always dependable and easy to get.

STOP THAT LEAK

Tread cuts and surface injuries admit moisture and sand into the fabric to rot and weaken it, causing blow-outs and short mileage.

—Sell Adamsons to repair such injuries in a few minutes time, while the tire remains on the wheel.

Practically every motorist wants an outfit to vulcanize his own tube punctures and blow-outs.—Sell him the dependable Adamson to make quick and lasting repairs—at home or on the road—without the use of cement.

For quick sales and no dead stock carry Adamson Vulcanizers and Repair Gum.

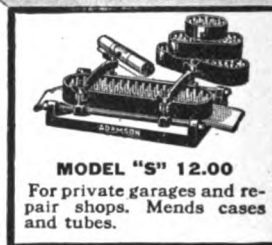
Sold by all Jobbers

ADAMSON MANUFACTURING CO.

EAST PALESTINE, OHIO.

We also make Adamson Ford
Brake Shoes, Lined and Unlined.

*Money Savers
for the Motorist*



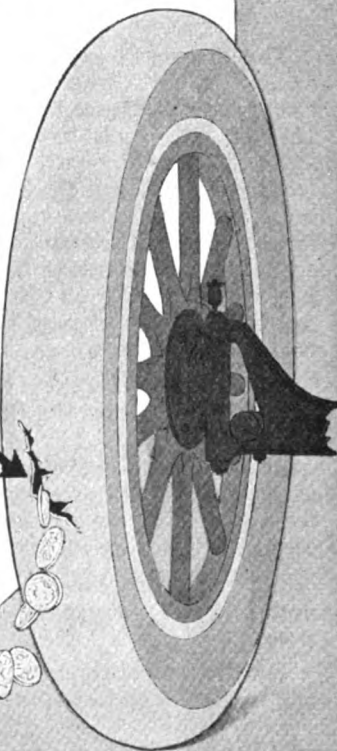
MODEL "S" 12.00

For private garages and re-
pair shops. Mends cases
and tubes.



ADAMSON REPAIR GUM

Essential for best results
with any portable vulcan-
izer. Perfect adhesion with-
out use of cement.





What's Going On, Now, Inside Your Car?

Inside the engine?—the gearcase?—the differential?—the transmission?—the Bearings?

THESE are the vital places that make—or fail to make—your motor car a source of personal pleasure—your motor truck a source of personal profit.

These are the vital places—places which should be protected by scientific lubrication.

You can have *positive* protection for your car's valuable mechanism by insisting on scientific lubricants:

Motul, for your motor.

Gearese, for transmission gears.

Cupese, for bearings and every place lubricated through a grease cup.

Send for "The Insides of Your Car"—a 36-page book which covers completely the subject of automobile lubrication, and which gives real money-saving facts that you may have overlooked; also for booklet "Once a Year Remember." Yours for the asking.

Exceptional proposition open to auto accessory Jobbers and Dealers. Write for details. S-F Auto Div.

SWAN AND FINCH
COMPANY
NEW YORK

Quality Oil and Grease Products Since 1853

MAIN OFFICE:

165 Broadway, New York

BRANCHES:

Providence: 306 So. Water St.
Chicago: 20 West Jackson Blvd.
Philadelphia: 508 Otis Bldg.

San Francisco: Norman Cowan Co., Pacific
Coast Representatives, 433 Rialto Bldg.
Cleveland: 1202 Sweetland Bldg.

WORKS:

Bayway, N. J.

Syracuse, N. Y.

SPECIALTIES

GEARESE

—A correct lubricant for motor car transmissions and differentials. It follows the gears continuously, leaving no spot where metal can touch metal. Gearese insures against wear, reduces friction and insures a silent, smooth-running car. Gearese maintains its lubricating consistency under all temperatures.

Gearese should be packed into your gear case and differential about once a year.

CUPESE

—A special quality cup grease, produced by the exclusive Aca/oric Process. It is made in all densities, from very light to extra heavy. Ideal for wheel bearings, brake connections, gear and clutch levers, universals, spring leaves and bolts, steering arms and knuckles and axle caps.

Cupese spreads rapidly, adheres to the bearing surfaces, absolutely prevents metal-to-metal contact. It does not liquefy or evaporate under intense heat—does not cake at low temperature—does not clog bearings or leave residue in cups. It is all lubricant.

MOTUL

—A superior quality oil for the protection of automobile motors. Motul is made by a special process which insures super heat-resisting qualities. Although the heat of explosion in the cylinders is terrific, Motul maintains its lubricating consistency—keeps friction under control—protects your motor bearings and cylinders. Under test Motul shows a minimum of carbon residue.

SLO-FLO

The super-lubricant; will not drip, climb nor spatter. withstands excessive heat and pressure.

AERUL

A practical high quality oil for aeroplane motors.

ASBESTESE

An asbestos and wool-mixed grease lubricant for car journals.

MARINUL

A well-known special oil, produced to meet the excessive stresses of marine service.

CORUL

A liquid binder that meets the 11 requirements of perfect core casting.

TEXTUL

An economical, high quality oil compound for wool and worsted manufacturers.

TALESE

An economical, practical drop-forge die-swabbing grease compound.

EXESE

The 600 deg. F. Lubricant—for oven gears, bloom cars—calendar rolls, automatic stokers—or lubrication under excessive heat conditions anywhere.

VESUVESE

A waterproof lubricant for exposed gears—for wire cable dressing.

LARCUL

A practical, economical metal-cutting lubricant.
Also, S-F general Grease and Oil Products.

SCIENTIFIC LUBRICANTS for SCIENTIFIC EDUCATION

When writing advertisers please mention Motor World—it identifies you



Avoid Disputes With Customers

You cannot afford disputes. They are costly in cash and customers.

It will pay to prevent them rather than have to adjust them.

The N. C. R. system in your garage *will* prevent disputes and protect you and your customers.

But disputes are only one of the troubles in the garage business.

The N. C. R. system will prevent troubles by enforcing correct records.

It protects your profits.

It enables you to tell right where you stand in volume of sales and profits.

***Install the N. C. R. system in your garage.
For details send this coupon today.***



*Up-to-date National Cash Register
for 4 clerks*

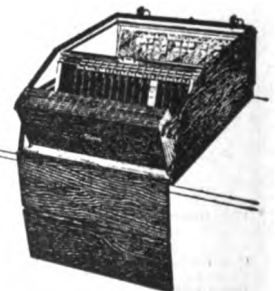
To Dept. 3404

National Cash Register Co., Dayton, Ohio

Please send me full particulars of your cash register for a garage, and the N. C. R. Credit File.

Name

Address



*N. C. R. Credit File
for 180 Accounts*

When writing advertisers please mention Motor World—it identifies you

PAIGE

The Most Beautiful Car in America

We Will Stick

Never before in the history of the Paige-Detroit Motor Car Company has there been such a demand for Paige cars. Never has the demand for Paige cars been so general. Every state, county and city of the United States is demanding a greatly increased quota. Every Paige dealer these days is active and insistent.

In our judgment these extraordinary Paige sales—in this War-Year of 1918—prove several things. They prove that the American people recognize the fact that the motor car is an indispensable utility; that they are buying motor cars carefully and intelligently; that they are buying only the best cars; that they are selecting the Paige because it is a sound, conservative, profitable war-time investment.

For this overwhelming endorsement of Paige cars, the Paige-Detroit Motor Car Company and Paige Dealers are grateful indeed. We regret that we cannot increase Paige production to satisfy every Paige purchaser and enthusiast.

Undoubtedly, you know why Paige production cannot be increased—in this War-Year of 1918. We cannot discuss the tremendous expansion the Paige has made these last nine months to meet the needs of the government, the nation and the CAUSE—the greatest cause since the birth of civilization—for which it is the great PRIVILEGE of all of us to fight.

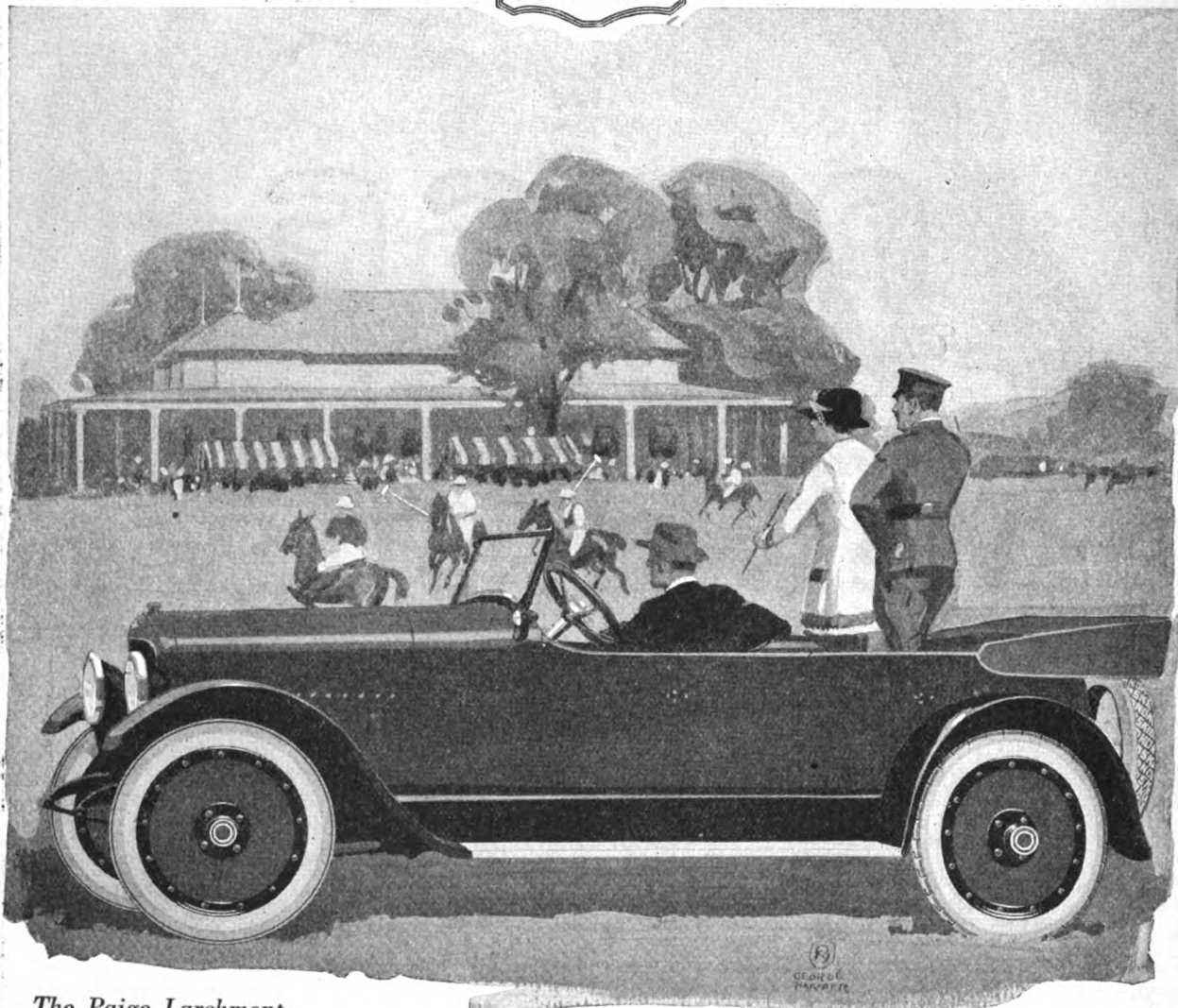
Always we will strain every nerve and energy and tax every resource to meet the needs and wishes of that vast body of sentiment that has brought us success—our Paige Patrons.

But we feel that we—and YOU—have an infinitely greater obligation to discharge, an infinitely greater task to perform. To accomplish this the Paige-Detroit Motor Car Company has pledged itself to invest every dollar of its huge capital and all the brains and brawn and patriotism of the thousands of men who rally beneath the Paige Banner. We Paige men are in this Fight to Win.

"And we won't come back 'til it's over, 'over there'."

PAIGE-DETROIT MOTOR CAR COMPANY, DETROIT, MICH.

DISTEEL
WHEELS



The Paige Larchmont

DISTEEL WHEELS

Disteel Wheel equipment makes easier the selling of medium and high-priced cars, because, Disteel Wheels not only bring out the beauty of the car, but very substantially improve the performance of the car and increase the safety, comfort and economy of motoring. With the advent of the Disteel, the wheel is no longer a primitive survival, but becomes one of the car's outstanding features of beauty and mechanical excellence. The Disteel Wheel is the wheel that completes the Car.

Dealers selling quality-cars to a discriminating trade will be interested in our proposition.

DETROIT PRESSED STEEL COMPANY
1804 Mt. Elliott Ave. Detroit, U.S.A.



When writing advertisers please mention Motor World—it identifies you



What's Ahead for YOU?

You can have anything you want—but you must decide NOW. The war period has given business a tremendous stimulus. The calmest judges of affairs in the country predict an after-the-war trade that will stagger even the optimists. And every man who thinks knows that it is true.

The world's present facilities for transportation are totally inadequate for the new job. American business men turn hopefully to the MOTOR TRUCK for its solution. The demand for motor trucks today is enormous. A year hence it will be infinitely greater.

You can get a large share of this business in your locality selling D-E Worm-Drive trucks—larger than you could with any other, for this reason:

D-E trucks are the best-built, most powerful and the greatest values in Worm-Drive Trucks at their prices in America today. They have all the worth-while features of construction of trucks costing hundreds of dollars more—and a *carrying capacity* that is remarkable. Write or wire for detailed specifications and dealer proposition and lay your foundation NOW for a period of record-breaking prosperity.

D-E WORM-DRIVE TRUCKS

MODEL J	MODEL A	MODEL B	MODEL C	MODEL D	MODEL E
Chassis Carrying Capacity Including Weight of Body	Chassis Carrying Capacity Including Weight of Body	Chassis Carrying Capacity Including Weight of Body	Chassis Carrying Capacity Including Weight of Body	Chassis Carrying Capacity Including Weight of Body	Chassis Carrying Capacity Including Weight of Body
2250 Pounds	3500 Pounds	4500 Pounds	7000 Pounds	5500 Pounds	14000 Pounds
\$950	\$1495	\$1755	\$2365	\$1835	\$4300

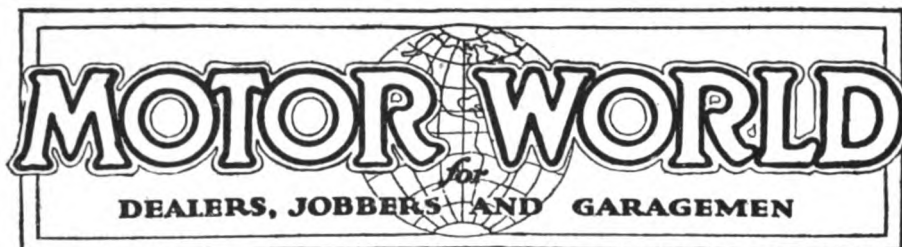
DAY-ELDER MOTORS CORPORATION

General Sales Offices, 1455 Broadway, New York City, P. K. Hexter, General Sales Manager
Factory, Newark, New Jersey, U. S. A.



When writing advertisers please mention Motor World—it identifies you

April 24, 1918



Summer Merchandising Number

¶ It will be a monument to merchandising optimism. It will key-note the industry's confidence in the busy season upon which we are about to enter.

¶ Manufacturers of products that are distributed via dealer, jobber and garageman are invited to co-operate in making this forthcoming big Summer Merchandising number a greater success than any of its predecessors.

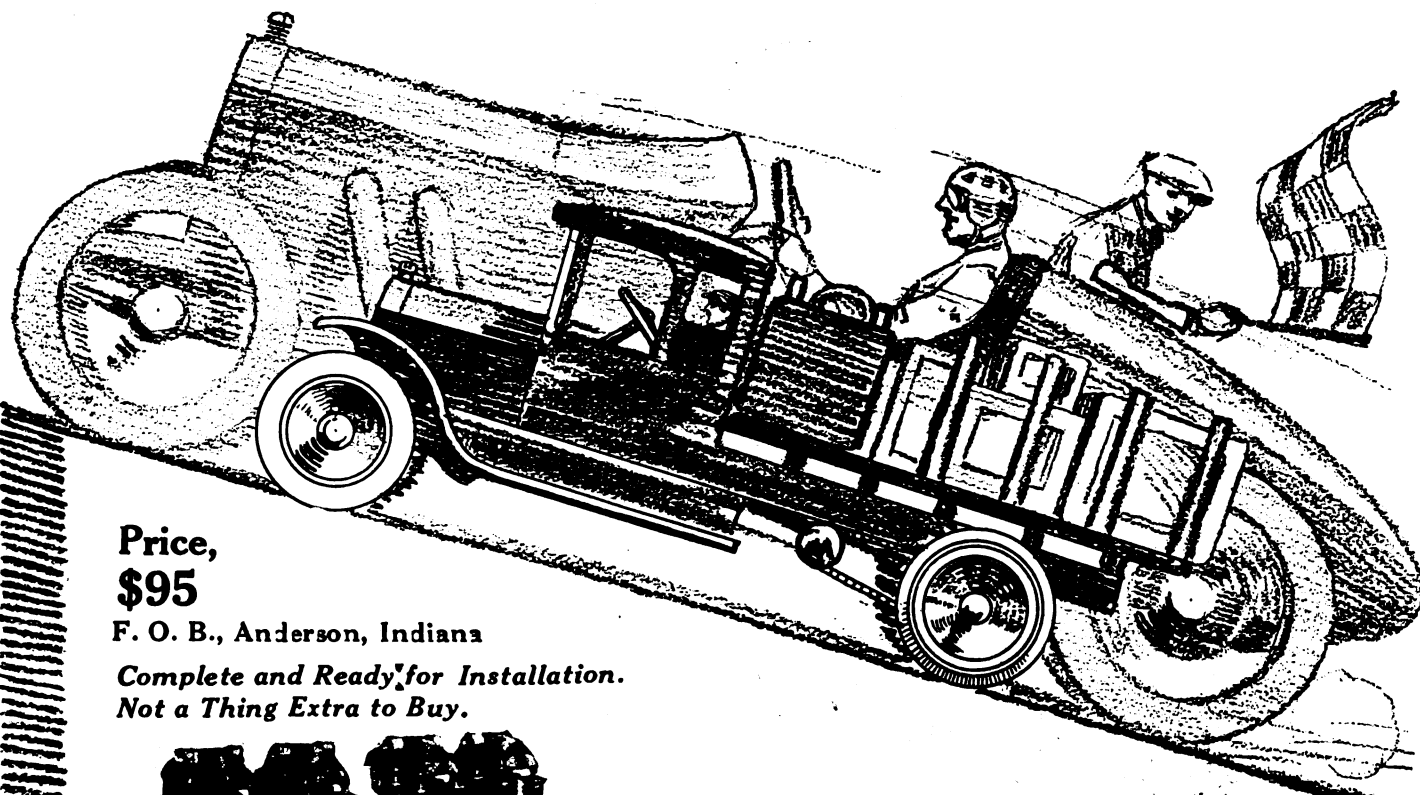
¶ Corporations and individuals who sell and maintain cars, trucks, tractors, accessories and supplies will welcome the big and inspiring message—the business creating and profit building message—that will be carried on every page from front cover to the end of the book.

¶ It will be a splendid advertising investment. It will carry the merchandising message straight to the hearts of those upon whom manufacturers depend for the successful sale of their products.

¶ Because of delay in the handling of mails do not put off the preparation and early sending of advertising copy. Get it to us quickly and insure maximum advantage in its handling.

April 24

The Issue That Will Reflect and Stimulate Optimism



**Price,
\$95**

F. O. B., Anderson, Indiana

*Complete and Ready for Installation.
Not a Thing Extra to Buy.*



ROOF 16 Overhead Valve Equipment for Fords Turns the Speed of the Racer Into Power for the Commercial Ford

The wonder of two seasons on the race course has been the remarkable speed of Ford cars equipped with ROOF 16 Overhead Valves. 75 to 80 miles per hour was a common clip—while some drivers, with special gear speed range, urged their cars to 87 m. p. h.

All this speed was due to the fact that ROOF 16 Overhead Valves increase the volumetric efficiency of the motor, which, converted to meet the requirements of commercial Fords, resolves itself into additional power and economy that makes Fords the best paying investment in the light commercial car field.

Instead of racing through the country at break-neck speed, commercial Fords, ROOF equipped, convert every ounce of the excess energy into power. They plow through mud and forge ahead over hills.

And at the end of the run—where the speedster would count minutes or hours saved, the owner of the ROOF equipped commercial Ford counts his extra profits from mileage he never dreamed of before.

The Ford in business is a reliable car—and an economical one under any conditions, but once equipped with ROOF 16 Overhead Valves, it makes new records, and breaks them—for power and economy—as startling as the racing

Ford, ROOF Equipped, makes new records and breaks them on the race course.

And you will also find that ROOF equipment on Ford passenger cars pays for itself in a remarkably short time, through fuel economy and better general performance of the motor.

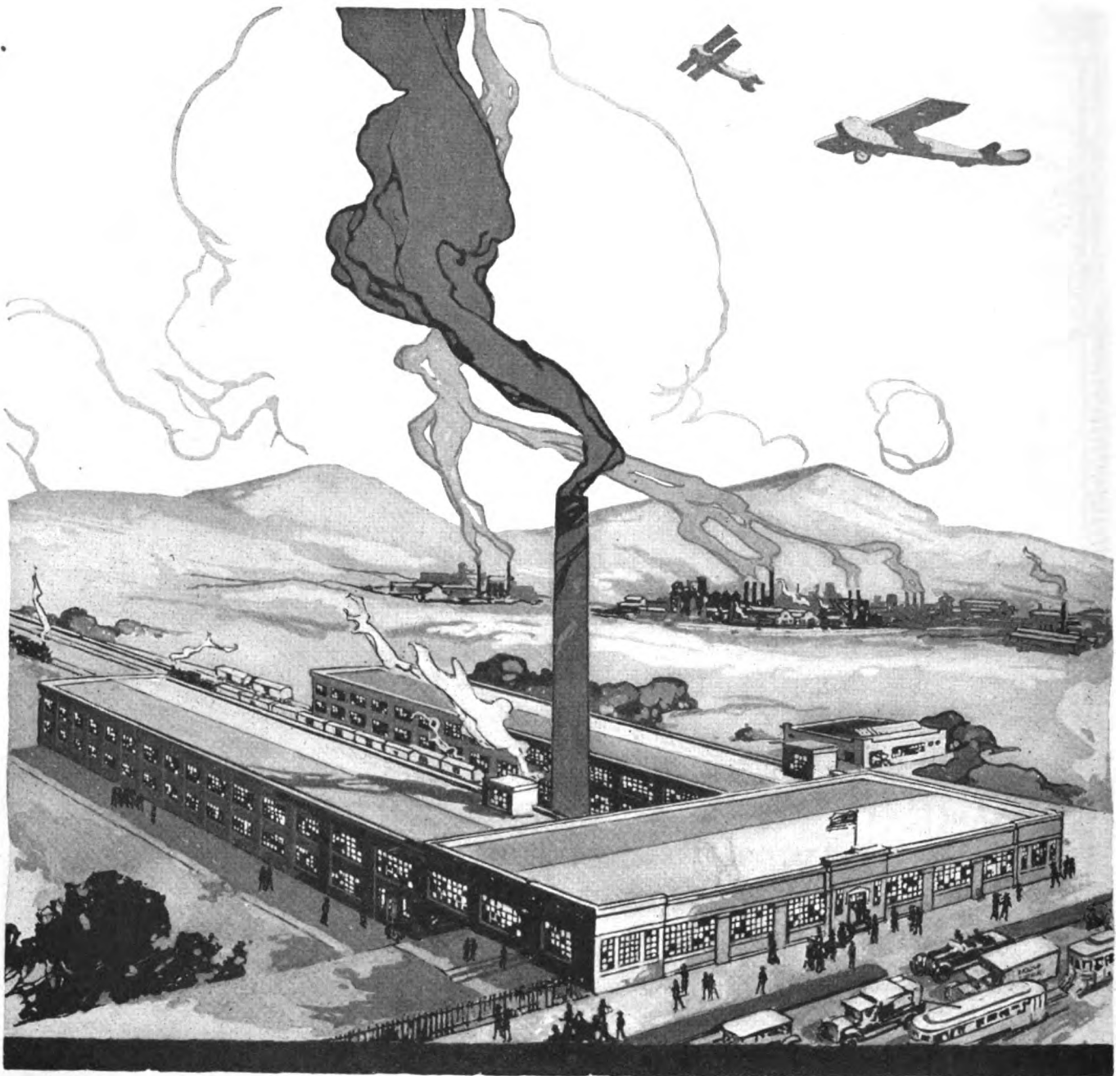
Any mechanic can install it in a few hours.

Write or wire for complete details.

DEALERS—Here is an 87-mile-an-hour seller. Get your territory while the season is young. It's a snap to sell ROOF 16 Overhead Valves for Fords. Write.

When ordering state whether for touring car and truck or for speed work.

Laurel Motors Corporation Successors to Roof Auto Specialty Co. **Anderson, Union Bldg., Indiana**



Seventy-five thousand spark plugs every working day.

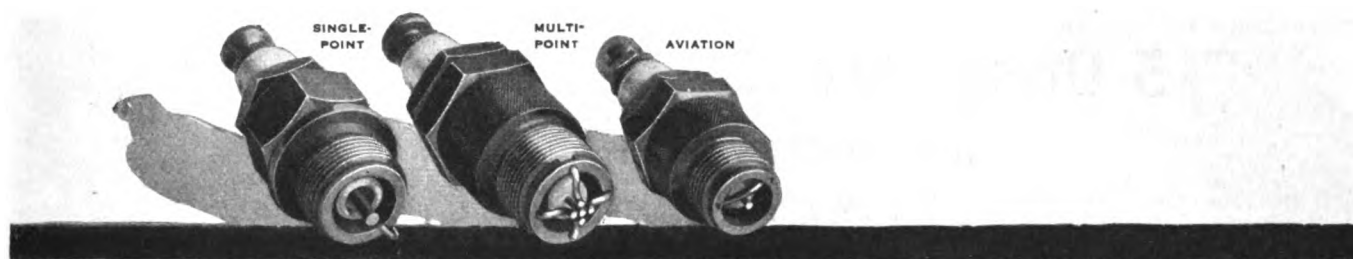
This is the production capacity of the Silve Company's new plant, situated at South Bethlehem, Pennsylvania. Stretching out over thirteen acres, this new factory building, fully equipped with the latest approved machinery, testifies to the progressiveness of the Silve Company's sales and manufacturing organization.

Bethlehem

When writing advertisers please mention Motor World—it identifies you



A New Plant to Help Production Keep Pace with Demand



And it is visible proof of their ability to make good their promise "to deliver on time." Most important of all, it bears witness to the substantial quality of Bethlehem Spark Plugs and their ready acceptance by America's motoring public. And consumer acceptance—the basis for the successful merchandizing of any article of manufacture—demands *first* that the quality shall be right.

The Silvex Company, BETHLEHEM PRODUCTS, Bethlehem, Pa., E. H. Schwab, *Pres.*

Spark Plugs

When writing advertisers please mention Motor World—it identifies you

FOR SALE—

Owing to cancellation from original purchaser, due to delay in shipment, we have on hand in New York City, 6 automobiles, of which we will sell one or all at a very low price.

They are:

1 Marion Handley

7 passenger, 6-60.

Color—dark green, nickel finish, Victoria top.

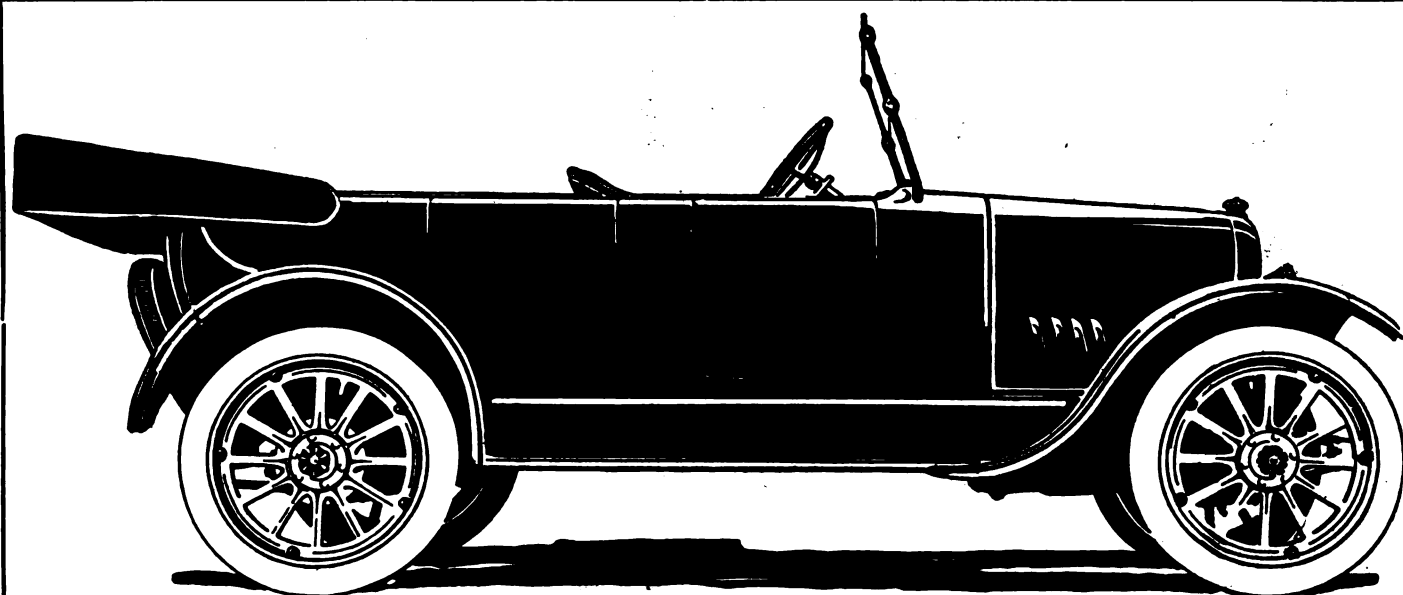
5 Bour Davis.

5 passenger, 6-40

Color—dark blue and dark green, many spare parts.

All are absolutely new and completely equipped. Can be seen by communicating with

E. B. care of
Motor World
239 W. 39th St.
New York



If You Get the Briscoe You'll Make Money

Your profits on the Briscoe line are only limited by your ability. Briscoe has become one of the great money-makers for dealers in light cars.

Our Chicago distributor does approximately \$1,000,000 a year on Briscoe cars. Another distributor in Texas is selling 1200 Briscoes in 1918. Another in Kansas City is selling 1200 this year. Another in unpromising territory sold in ten weeks the cars he thought would last him a year when he contracted.

With the Briscoe factory in giant production as it is to-day, it is a certainty that the line will make money for you the way it is doing for hundreds of Briscoe dealers in territory perhaps not so good as yours.

GET THE BRISCOE LINE

The Briscoe is the only low-priced car finished in more than one color. Its body lines are ahead of anything in its class.

There is no other car selling at or near its price with the absolutely correct style in body lines.

You have the roomiest, easiest riding car and the half-million motor economy. These are exclusive selling advantages and with our great production make the Briscoe line a money-maker for you.

Tell us the territory you would like to have. How many cars can you handle? How soon could you start? For you to profit we must get together. Start from your end today.

BRISCOE MOTOR CORPORATION
DEPT. 172 JACKSON, MICHIGAN

BRISCOE \$825
THE CAR WITH THE
HALF-MILLION DOLLAR MOTOR

The 1st of May Thrift Stamp Day In The U. S. A.

**The Active Co-operation of Every Reader of
MOTOR WORLD
Is Urgently Requested To Make It A Success**

May 1st, 1918, will be observed throughout the United States as Thrift Stamp Day! On that day retail stores everywhere in every line of business will ask customers to take **part of their change in Thrift Stamps!** It will be patriotic for every man, woman and child to accept at least one Thrift Stamp as change on every purchase made that day—and to make as many purchases as possible on May 1st.

Here is a big, practical way of getting millions of Thrift Stamps into the hands of the people of the United States, and of insuring the success of the Government's War Savings Stamps campaign. Thrift Stamp Day will **help everyone.** It will prove a tremendous boost to business. On May 1st, 1918, the nation should do the biggest total retail business of any single day in our history! The beneficial habit of Thrift will be

sown broadcast among the citizens of the U. S. A.! Most important of all, Uncle Sam will be furnished with the sinews of War and Victory!

American business must go "over the top" **at once** in a quick drive to make Thrift Stamp Day an overwhelming success. You wholesalers, you jobbers, you salesmen, must **talk** Thrift Stamp Day among your trade, arouse the **enthusiasm** of the retailers, the storekeepers, the clerks behind the counters. Uncle Sam **needs your help.** A practical **plan** has been prepared showing how each one of you can "do your bit" to make Thrift Stamp Day a red letter day in American business annals. Write for this plan **today without fail.** Remember, in helping Uncle Sam you are helping business and helping yourself. Address Mr. W. Ward Smith, National War Savings Committee, 51 Chambers St., New York City.



NATIONAL WAR SAVINGS COMMITTEE

51 Chambers Street, New York City

THIS SPACE DONATED BY THE PUBLISHERS

When writing advertisers please mention Motor World—it identifies you





KLAXON



This is the 20 L Klaxon
Warning Signal, Electrically operated.

\$25.00

¶ There is only one Tiffany,
only one Kodak, and only
one Klaxon.

¶ And that is a KLAXON -Klaxon.

Look for the Klaxon Name Plate



KLAXON

Company :: Newark, N.J.





“—and 360 of these little tots, their souls wrung with the torture of denial, turned away—to die.”

There they were, in front of our Relief Station, some sitting, some leaning against the wall—for they were weak, these tiny sufferers. Of our scant supply of food there remained but enough for 70, with 430 yearning, craving stomachs waiting in hopeful anticipation. And, oh God, the look of agony that went up from those 360 who were turned away unfed! They trudged off, so wearily, so painfully, so hopelessly—where?—*wherever there was a place to lie down and die.*

And that night a government cart rolled down the streets on a gruesome errand. * * *

Yes, this is true, and typical of the plight of 400,000 other little mites in Armenia and Syria, victims of the religious fanaticism of their Moslem masters. Torn from their homes (and such happy homes they were!) with relentless brutality during the recent campaign of murder and pillage conducted by the Turks, they were forced by these German-led troops to flee across the desert, while fathers and older brothers were butchered, mothers and sisters outraged.

This is Armenia, this is Syria, once the fair home of a cultured and prosperous people, now a symbol of Turkish ruthlessness—a shambles. To this not even the tragedy of Belgium is comparable. And all that is left to the two million and a half survivors is starvation, unless—and this part is *wholly up to you*—unless the work of relief, so ably started, is given sufficient financial support to continue. However little you have, of that little you can spare *something* to help lift the cloud of desolation that hangs so heavily over this hapless land.

The Price of One Cigar a Day Will Save One Life

Seventeen cents a day (\$5 a month) will keep one child properly nourished. No American business man can refuse so slight a sacrifice in so noble a cause—and it's America *alone* that can help. Give what you are able to: all you can—but give this little *at least*. Pledge yourself to the maintenance of one child—more if you can. Remember, there is a little life *dependent on you*! Whether you send \$1, \$5 or \$100, every penny you donate will go for relief, as all campaign expenses are met privately.

Send all money and make checks payable to

CLEVELAND H. DODGE

Treasurer, Armenian and Syrian Relief

1 Madison Avenue, New York City

This space donated by the publisher





THE NEW \$500,000 HOME OF THE GIBSON CO., INDIANAPOLIS, U. S. A.

GIBSON— 1918 Catalog Ready

MINIMIZE the danger of delays incident to shipping! The Gibson Company, fortunately, is located in the very heart of the country's greatest automotive production territory. We get the goods *in*—and get them *out*—surely and promptly. Also, consider these advantages:

- (1) In the mammoth and complete Gibson stock you find practically *everything* that is standard. Concentration is desirable, and you will find us ready and able to supply practically your *every* need.
- (2) We handle only goods of proven reputation and merit. Our business—founded 20 years ago—is built upon this policy. We make our own tests of every item before it is placed in our stock. Thus you can buy Gibson supplies with confidence in their quality and salability.

Still other reasons why you will find it profitable to buy from The Gibson Company are contained in our new 1918 catalog—just off the presses. It contains over 400 pages—a veritable 'store-house' of proven, profitable merchandise—and will be sent gladly anywhere—to any bona fide dealer. Write today for your copy. Address,

THE GIBSON COMPANY

INDIANAPOLIS, U. S. A.

"The Center of Automotive Production"

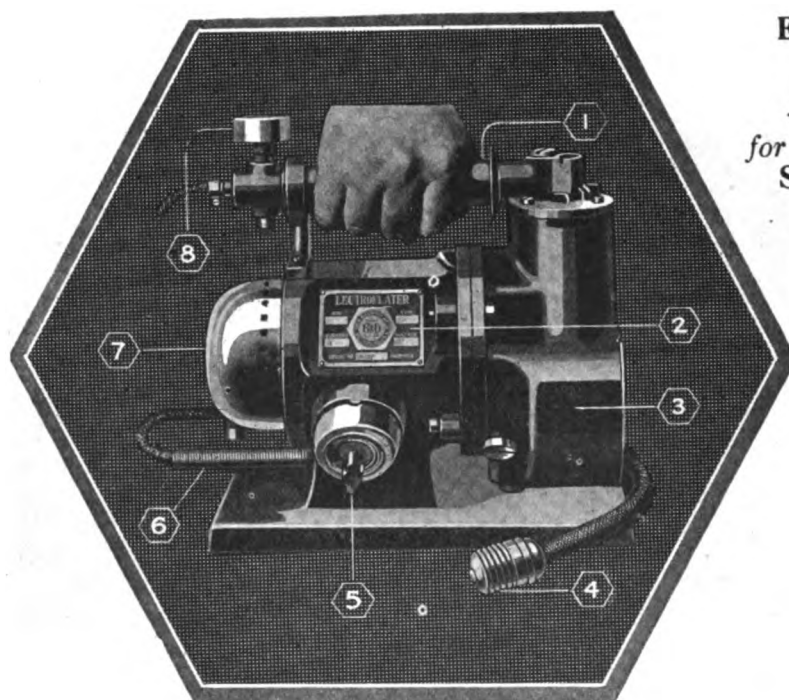
MOTOR CAR ACCESSORIES AND TIRES

SHOP EQUIPMENT AND ELECTRICAL SUPPLIES



G I B S O N S E R V E S T H E W O R L D

When writing advertisers please mention Motor World—it identifies you



No. 2 Wall Type

Economical
AIR
for Garages and
Salesrooms

LECTROFLATER

ELECTRIC AIR COMPRESSOR

Compare These Exclusive Features:

1. Condensing chamber and water trap. Extracts all moisture from the air. Water can be drained off at will.
2. All working parts both electrical and mechanical are self-contained in a single metal housing—protection against dirt. No exposed parts, no gears, no chains, no belts, no shafts—no place for dirt or dust to gather—all corners are rounded—easy to keep clean.
3. Grease—not oil—lubricated. No oil level to maintain. Requires repacking only four times a year. No oil vapor to ruin tires.
4. Operates from any electric light socket. Special compensating windings; uses either alternating or direct current—a big advantage should you ever move where the form of current is different. 15 ft. of electric cord with socket supplied.
5. Conveniently located hand switch for starting or stopping pump.
6. Protected cable.
7. Air cooled by a forced draught. No liquid to freeze or evaporate. Pump can be operated continuously without heating.
8. Large, accurate pressure gauge shows pressure in tire before, during and after inflation.

YOU CARRY IT from car to car like a satchel or mount it on the wall—snug and handy.

Just connect it to any electric light socket and turn the switch—that's all. It's always eager to work when you are.

Quick!—it inflates a 33 x 4 tire from flat to full pressure in less than two minutes.

It's economical, too; will inflate ten tires at an average cost of one cent for current.

A cleaner pump was never built; clean to look at and clean to operate—a credit to a man's place of business and a compliment to his customers.

Built for long, hard service, and so guaranteed.

Write to-day for catalogue describing the full line of Lectroflater Pump and Combination Units; the most complete line of air equipment available. Prices range from \$85.00 up

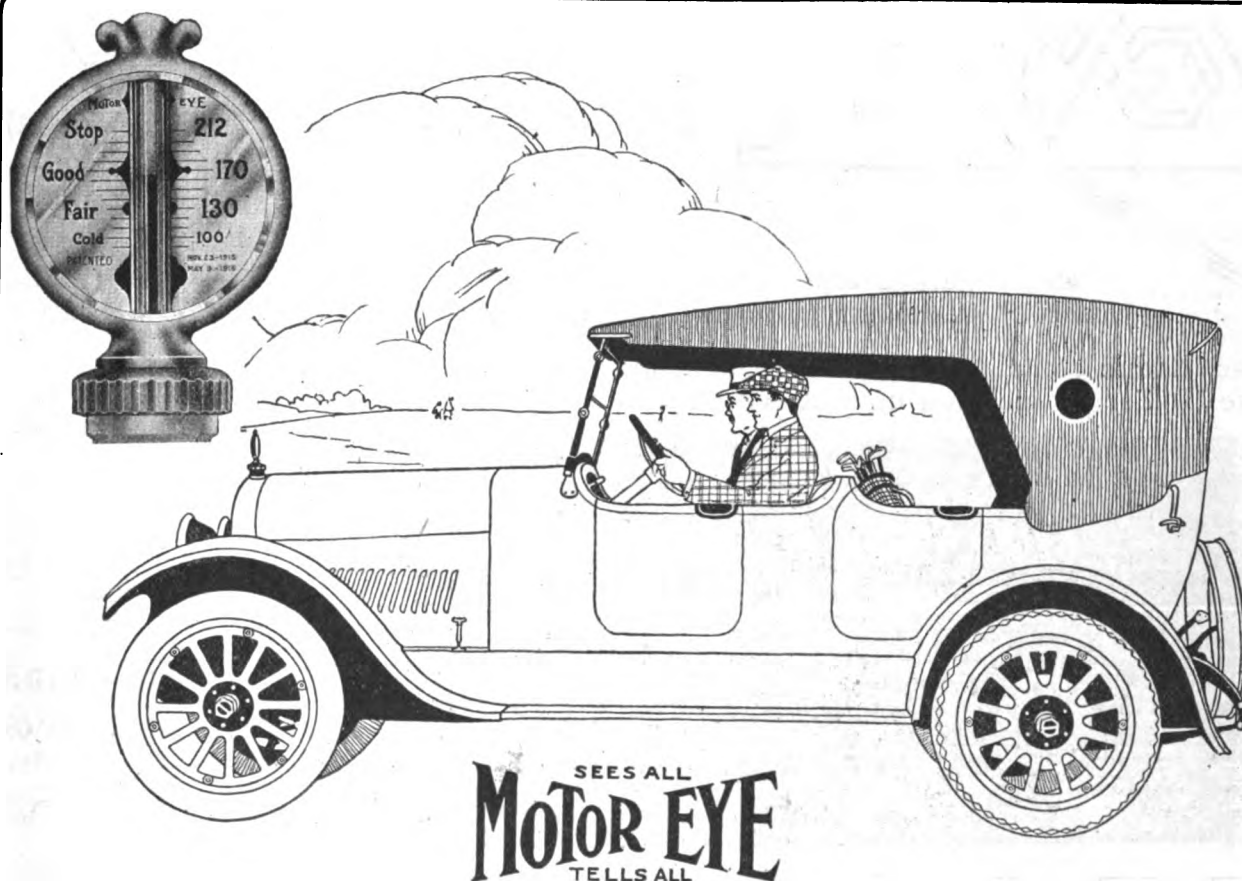
The Black & Decker Mfg. Co.
107 South St., Baltimore, Md., U. S. A.

Distributors in Canada: **Northern Electric Company** Montreal



English Distributors: R. A. ROTHERMAL,
18 Poland Street, Great Marlboro, London, Eng.





Is Now Standard Equipment on the Stephens Salient Six



Sectional View
showing the principle of Motor Eye
Operation

MOTOR EYE is now standard equipment on every new Stephens Salient Six. Its adoption as official protector for "the perfected overhead-valve engine that burns *all* the gasoline" is the O. K. of some of the leading engineers in the industry. Their decision is based on careful judgment and facts.

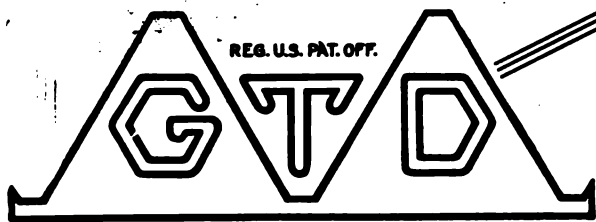
MOTOR EYE is true. It gives the *actual temperature* of the motor at all times—regardless of the water level in the radiator, as the thermo stem is constantly bathed with the water as it enters the radiator. It *registers every degree of change* in the motor's temperature—either up or down. Its spirit is guaranteed against fading. It always warns *before* damage can be done, not after water is boiling.

Thousands of valuable motors—besides the new Stephens Salient sixes—should be protected by MOTOR EYES this year. In stock it turns over fast. An installation on every car you overhaul alone means a *liberal extra profit* for you.

Write for Free Illustrated Literature and Complete Details, Today.

Sole Owners and Manufacturers
METALWARE CORPORATION
CHICAGO

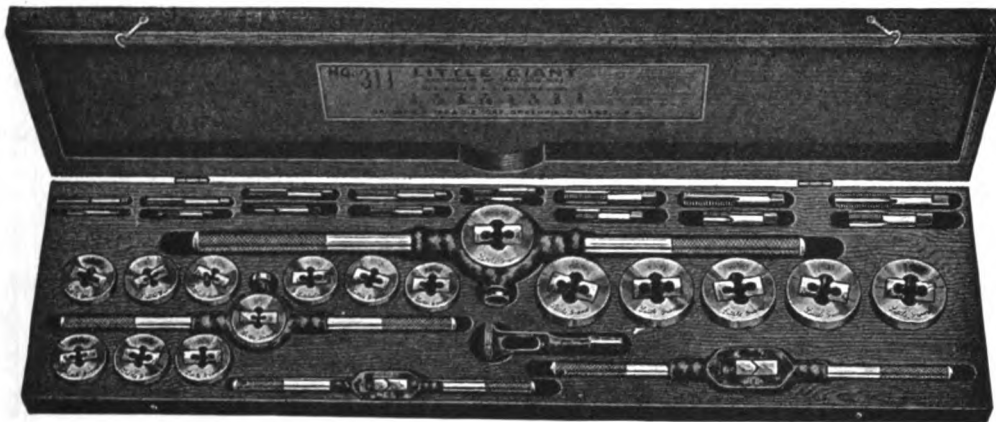
Sales Department
THE ZINKE CO.
CHICAGO



Look for the **GTD**
trade mark when you want
the best Taps and Dies

Every garage and repair shop should be equipped with "LITTLE GIANT" Combination Screw Plates. Furnished both in U. S. and S.A.E. Standards.

Each die is contained in its own collet and adjusted to size. There is also a Bit Brace Die Holder for cleaning up battered threads in out-of-the-way places.



If you are a manufacturer, garage or repairman—or a car owner who makes his own repairs—you can be supplied from our big established line.

Write today for the No. 37 Catalog

Greenfield Tap & Die Corporation
Greenfield Mass

New York, 28 Warren St.
Chicago, 12 S. Clinton St.
Canadian Factory: Wells
Brothers Co. of Canada, Ltd.,
Galt, Ontario.



I EARNED \$220000
IN
FOUR
MONTHS

THIS IS RICHARD A. OLDHAM

Mr. Oldham was telegraph operator for the Illinois Central Railroad for twenty years. He is fifty-eight years old. During all those twenty years he drew the customary monthly salary of a telegraph operator—no more—no less. One day he read one of my advertisements and the possibilities of making money in the Auto-Tire Repair Business. In a few weeks he had purchased and installed a Haywood outfit, and was doing business for himself. He was **His Own Boss**. A short time ago he wrote us that his income in four months was as much as it had been in Two and One-Half years as Telegraph Operator. You men who have been left at home—who are beyond the draft age—can and must take up the burdens left behind by others. Oldham is a living example of what can be done. I have 500 places to be filled now. 500 stations where tire repairing is neglected, because there is no one to do it.

I Must Have 500 Men to fill these places within the next 60 days

I have a big interesting book to send you—a book about tires—it explains this business—gives inside figures and profit. Gives actual proof of success—letters of others who are now operating Haywood Shops and making big money. What these men have done you can do. \$2500 to \$4000 a year is conservative. One machine will give you a start. You can see all business around you—everywhere there are automobiles there are tires that need repairing. You know that. All you do is open a shop—put out a Haywood sign and auto owners will come to you, welcome you and the service you bring them.

Sign the coupon and mail it today, or send a post card or letter.

M. HAYWOOD, Pres.
HAYWOOD TIRE & EQUIPMENT CO.
1146 Capitol Avenue, INDIANAPOLIS, IND.



M. HAYWOOD, Pres.
Haywood Tire & Equipment Co.,
1146 Capitol Ave., Indianapolis,
Ind.

Dear Sir—Please send me your book on Haywood Tire Repair Plants and full particulars on your National Tire Repair Service and details of your FREE school of tire repairing.

Name.....
Address.....

When writing advertisers please mention Motor World—it identifies you

You only have to sell a Parrett *once*—the service is built into it in the first place. It's not the kind you have to sell over again every time an owner calls for help

FIVE years of plowing and power-chores and harvesting have proved the correctness of the original Parrett principles, the soundness of its construction, the dependability of its service.

Dealer after dealer has prospered thru the satisfaction that Parrett Tractors have given in the hands of users. The low kerosene cost, the accurate control of the governor that saves fuel at each change of power requirement have spread the popularity of the machine. Its high front wheels make it useful in wet rice lands and its ample draw-bar power has proved its superiority for heavy soils.

When Parretts are put to work on the farm, they stay at work. They give constant dependable service—a service that is built into the machine at the factory. The demands made upon dealers for service after the farm owner starts to operate his Parrett are few and far between.

The opportunity in the Tractor field has never been so great as it is with the opening of 1918. The chance to represent a tractor which has proved itself, made good for five years with only minor changes, is more than an average opportunity.

If you want agency information regarding the Parrett, write today.

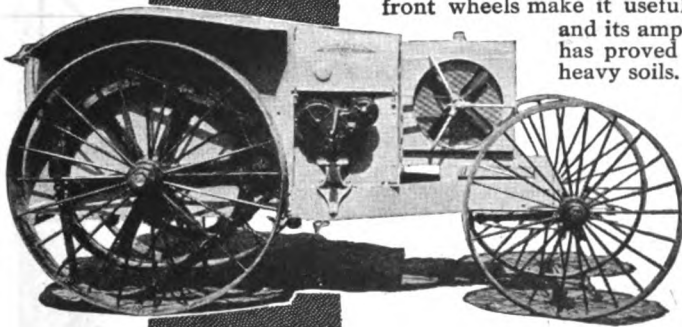
PARRETT TRACTOR COMPANY
426 Fisher Building Chicago, Illinois

PARRETT

12



25



Smart—Easy riding—Well built

The roomy bodies of the new Elcar models are designed along graceful, distinctive lines. Here is a car with **character**. It is easy riding under full or partial load. Drive all day and you won't be cramped. Plenty of elbow and limb room. Abundant power for hard pulls. All the speed you want. Fine driving qualities at all speeds. Built-in quality that insures good service for years.

Write for Catalog

Get all the particulars on the Six New Elcar Models—two Roadsters—two Touring Cars—two Sedans.

Dealers

Our increased output enables us to offer this fast selling car to a few more dealers.

Elkhart Carriage & Motor Car Company

C-779 Beardsley Avenue, Elkhart, Indiana

Model D-Four \$1095

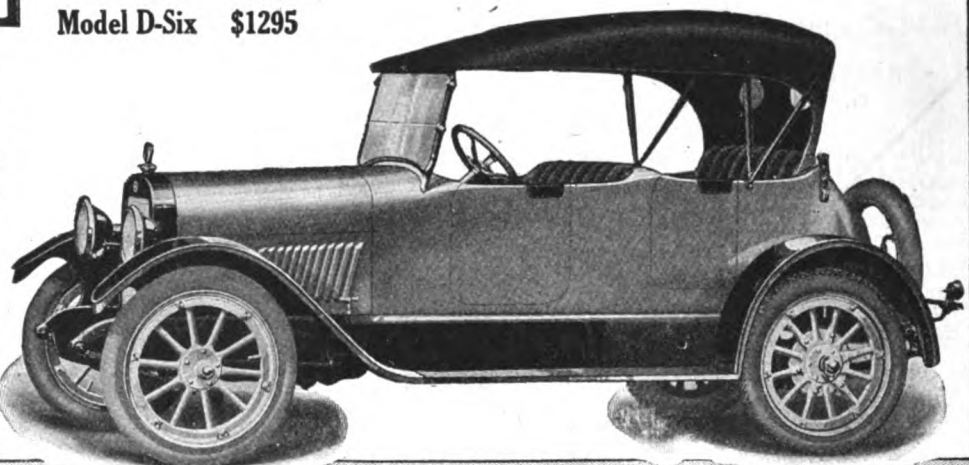
Model D-Six \$1295



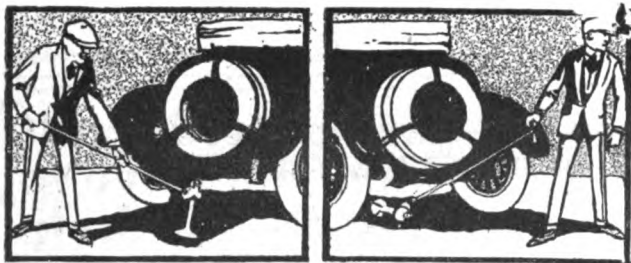
Brief mention of ELCAR points:

Four-cylinder models, 37½ horse power at 2100 r. p. m.
Six-cylinder models, 40 horse power at 2100 r. p. m.
Two unit electrical system.
Long wheelbase, 116 inches;
road clearance 10½ inches.
Full floating rear axle with spiral bevel driving gears.
Timken Roller Bearings front and rear. Double universal drive; tubular propeller shaft.

A wonderfully easy riding semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish, new "Cathedral Pipe" upholstery. Equipment complete, even to motometer.



When writing advertisers please mention Motor World—it identifies you



Every Operation without once getting under the car

You don't have to get down in the road and crawl under the car to put a Kimball Jack in position. You do it with the long handle. You give the long Kimball handle a few easy turns to raise the car. To lower you simply reverse the turns, and then remove jack by the handle.

With the Kimball you avoid accidents and soiled clothing. You save time and you save labor.

Note these exclusive Kimball features

Diamond point hardened steel top with *bull-dog* grip. Ball-bearings carry the lift and thrust. No pawls; no ratchets. Ball socket holds handle rigid while sliding jack under car. Folds up; comes in small bag; takes up little space in tool box.

Motorists ready for a better jack

Motorists everywhere are tired of the cheap, troublesome jacks so often found as car equipment. They want a jack

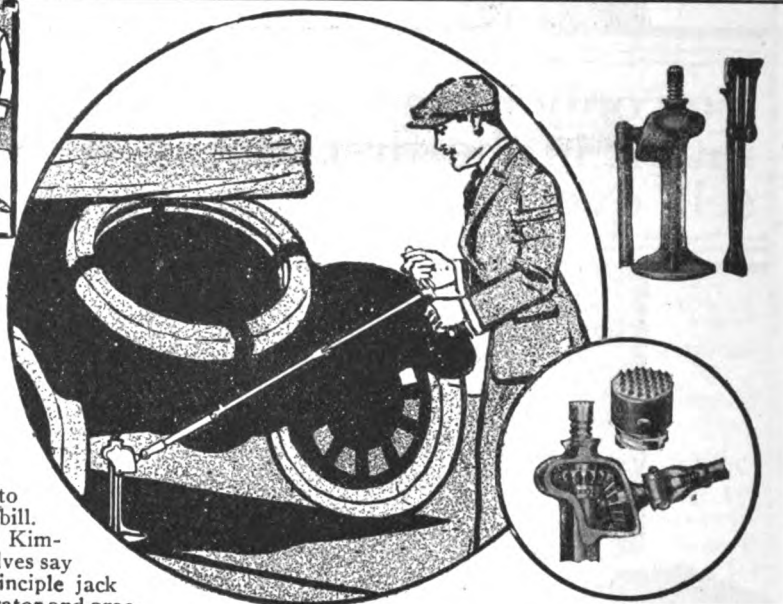
that will not break — one that can be operated with least trouble.

The Kimball Ball-Bearing Auto Jack fills the bill. Dealers who use Kimball Jacks themselves say that this new principle jack is a self-demonstrator and practically is a self-seller.

Write for complete particulars about this profitable accessory.

Sizes	Minimum Height	Extended Height	Prices
No. 1	9"	15"	\$5.00
No. 2	11"	18"	5.00
No. 4	12"	20"	5.00

Kimball Special Jack that easily raises any style truck sells for \$18.00



Sales Department

EDWARD A. CASSIDY Co., Inc.
Madison Ave., at 40th St., New York
Manufacturers, F.W. Mann Co., Milford, Mass.

KIMBALL AUTO BALL BEARING JACK

Asbestos Brake Lining

Silent—sturdy—slip-proof

The letters S-M-C on a roll of brake lining protect the man who buys, the man who sells and the man who equips the car.

Look for those letters—S-M-C. Insist on them.

S-M-C means Safety Made Certain.

Absolutely certain; because right materials, rightly treated and tightly woven make this the real asbestos brake lining. Cannot burn, glaze or crumble.

Made in rolls, of all widths, up to 6 inches.

Staybestos Mfg. Co.
5536 Lena St.,
Philadelphia, Pa.
I want your dealers' proposition on S-M-C Brake Lining and Universal Transmission Lining—particularly on your \$1.00 Ford Set.

Name
Address
City
State

STAYBESTOS MFG. CO.

5536 Lena St., Philadelphia, Pa.

The "Modern Factory" equipped to make all types of brake lining and all widths up to 6 inches.

When writing advertisers please mention Motor World—it identifies you

UNIVERSAL

Trade Mark Registered U. S. Patent Office.

Transmission Lining

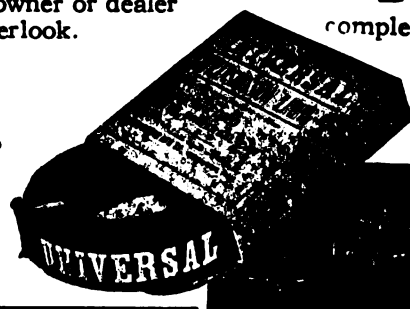
A wonderfully efficient cotton lining made by makers of the S-M-C Brake Lining. Compactly woven like S-M-C, treated with a perfected compound—which makes it water proof and oil proof. Absolutely chatterless. As quick as it is quiet.

This dollar set for Fords

—complete with three proper lengths for Ford transmission bands—and all rivets required, brings the business. An opportunity no Ford-owner or dealer can afford to overlook.

\$1

complete



1,000,000 Drop Forged Wrenches

All Sizes and Finishes
IN STOCK

THE WHITMAN & BARNES MFG. CO.

ESTABLISHED 64 YEARS

General Offices, AKRON, OHIO

NEW YORK STORE—64 Reade St.

Factories: Akron, O.; Chicago, Ill.; St. Catharines, Ont.

Dress Up Your Car!

Warner Covers in distinctive patterns dress up any car, no matter how luxurious its upholstery. Even when new, leather cannot achieve the snap and dash which Warner Covers impart.

In addition to adding to the smartness of your car, Warner

Covers keep upholstery new and bright-looking by protecting it from dust and wear. They add more to the resale value of a car than they cost.

Used cars are so altered in appearance by Warner Covers that an added season of service is secured without apology for looks. This year Warner Covers are helping many motorists economize by making their old cars so attractive they are glad to use them for another season.

Warner Covers save cleaning bills by preventing clothing from becoming soiled. A whisk broom keeps them clean. They fit like a glove, are made of enduring fabrics and are reinforced at points of hardest service. All lacing is out of sight, underneath the cushions. Fastened with glove snaps, they are attached or removed instantly for dry cleaning. Tailored to fit practically all standard cars. Have your dealer show you patterns.

WARNER AUTO COVERS
FOR CLEANLINESS
COMFORT — ECONOMY — STYLE

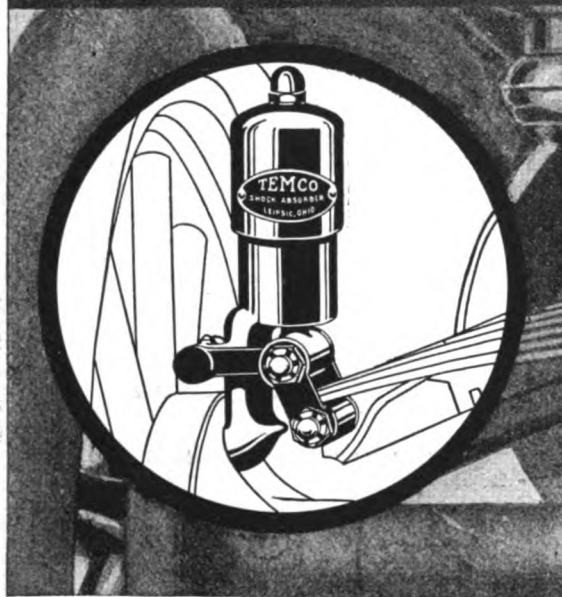


The Warner Auto Top Co.

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Temco is the old reliable—none other like it. Made with larger, stronger springs—two genuine crucible Vanadium Steel Helical Springs to each Shock Absorber—telescoping dust cap—absolute vertical position, preventing side sway; and other exclusive features.

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AN ALL YEAR VULCANIZING BUSINESS

The **ARTHUR VULCANIZER** has advanced vulcanizing from a mere one-season business to an **ALL YEAR BUSINESS**.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.

THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

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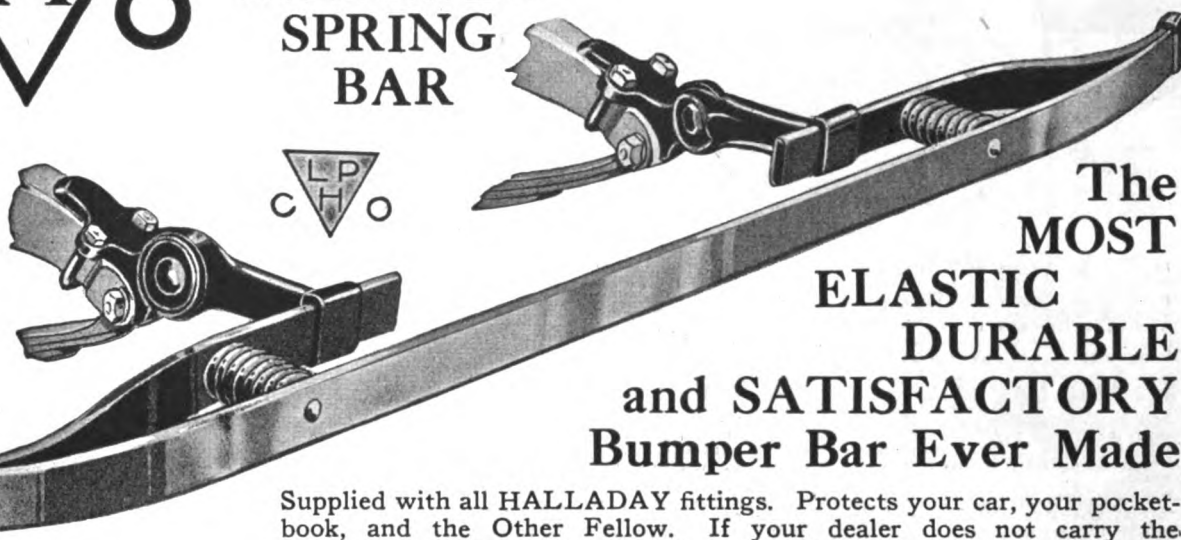
MODEL No 2

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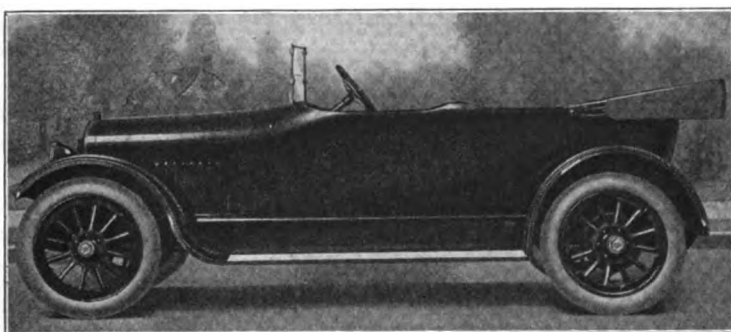


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Supplied with all HALLADAY fittings. Protects your car, your pocket-book, and the Other Fellow. If your dealer does not carry the HALLADAY Line write the distributor.

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TRADE MARK—
CONTRACT

*A Safe and Profitable
Investment for any
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We neither require nor desire a contract that asks everything of you and nothing of us. We want to accept our share of the responsibility and do our part in actually making sales. An advertising appropriation larger by far than we have ever made has been decided upon.

Pilot
"THE CAR AHEAD"
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PILOT MOTOR CAR COMPANY

If we can get together before April first we can take care of your requirements up to any reasonable amount. Don't wait until the selling season is half over before you contract. **GET BUSY NOW.**

PILOT MOTOR CAR COMPANY

Richmond, Ind., U. S. A.

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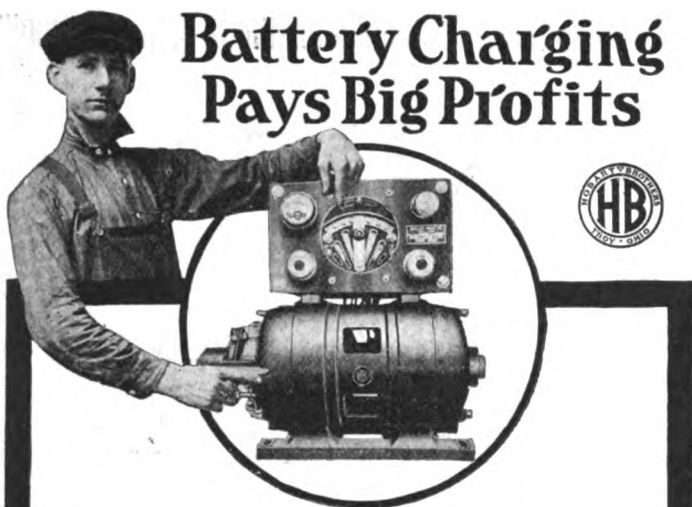


Figure it out for yourself! This HB 500-watt Battery Charger will recharge 1 to 7 batteries at a time. Current costs only 12c to 15c per battery. Autoists pay 75c to \$1.50. Your profit is 60c to \$1.35 on every battery you charge. HB users are making from \$40 to \$60 clear profit every month, and with more last year's cars in use and more batteries to be recharged, earnings are increasing all the time.

\$15 Puts This Money-Maker in Your Garage

Balance in 9 monthly payments of \$20 each, which earnings should easily more than pay. Tear out this ad and send it with name for full particulars, or send initial payment of \$15 with trial order. Under absolute money-back guarantee, you run no risk.

Put in an HB Charger. You can operate it easily from your city current or engine, without any electrical or mechanical experience, and it means big profits quickly made. Don't put it off. Order from this ad. Write or wire us today.

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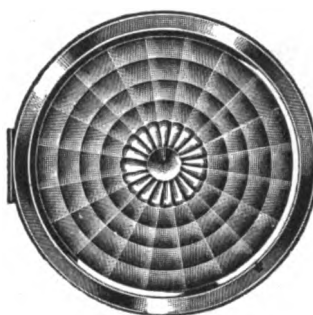
Box W34

Troy, Ohio

MORE LITE AUTO LENS

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Increased production will enable us to supply additional dealers this year. Write.



LIST PRICES

Inches	Per Pair
6 to 8 1/2 dia.....	\$1.50
8 3/8 to 9 1/2 dia.....	1.75
9 3/8 to 10 1/4 dia....	2.00
10 1/2 to 11 1/4 dia...	2.25

Manufactured by

L. E. SMITH GLASS CO.
MOUNT PLEASANT, PA.



Every open car owner needs one

The J. H. Tonneau Shield appeals to the motorist because it means real comfort to his family and guests, who sit on the rear seat. It protects them from the currents of air sweeping over the front windshield and shields them from wind, rain, dust and snow, making goggles and veils unnecessary.

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Used as equipment by leading car manufacturers.

J. H. Tonneau Shield

Thoroughly tried and perfected—not new. Adaptable for use on any car—it is simple, durable, dependable, handsome in appearance and easily installed. Waterproof apron at bottom keeps robes dry. Beautifully finished frame—fine quality glass.

The price is reasonable.

Don't miss this—Dealers—Write today.

TONNEAU SHIELD CO., Inc.

MFRS.

1777 BROADWAY

NEW YORK

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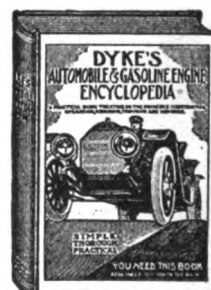
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A teacher, guide and reference on everything pertaining to motoring—simple as the A-B-C's.

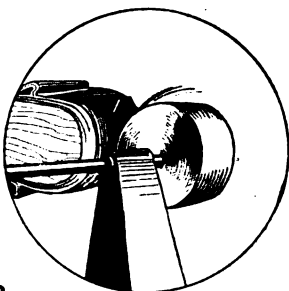
It's worth ten times its cost, if only placed on the shelf and used as a reference.

1750 illustrations—
696 pages—
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THE Emery-Wheel Test is the strongest selling argument that any tire dealer can use. It proves that the rubber in Swinehart Tires grinds down slower than that of any other tire. See illustration.

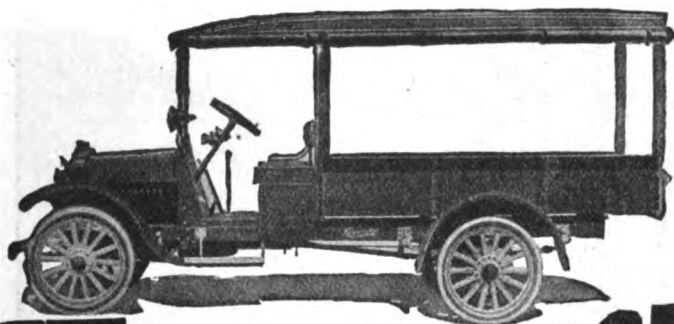


Think of the tires you can sell by being able to make such a statement to your trade, then

Write for Swinehart Dealer Proposition

SWINEHART TIRE & RUBBER CO., Akron, O.

Swinehart Tires SELL



Commerce

1 Ton Trucks

A Year Ahead of Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

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DRIDEK with its Leather finish will not chafe, crack or blister—and holds its color right through to the cloth lining.

A DRIDEK TOP
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**Plate fits all
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An extremely important exclusive feature of this press is that the screw, being exposed at the top, may be struck a sharp blow in obstinate cases, such as a rusted shaft, which pressure alone will not move. With maximum pressure applied, the jar of the blow does the rest. No damage to the press will result as it is designed to withstand such a blow.

The High Power Leverage of this press starts at 2200-1 and automatically increases at end of stroke to 5000-1. This is obtained by lever fitting into socket in ratchet block. Pawl uses same notches in handwheel, and you get tremendous pressure on screw with little effort.

The Low Power (1000-1) Leverage is ten times quicker than a ratchet.

Price, complete, \$66

*Write for complete Catalog. Manley Equip-
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Test your air pressure daily with a

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and give your tires new air whenever they need it.

New Air Is Cheaper Than New Tires

At your dealer, or

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Price \$1.25

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Money at Both Ends of the "WORKRITE"

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Put in a stock—*now*, and benefit from our advertising. If your jobber won't supply you, send in your order to us—you will be allowed regular dealer's discounts.

WorkRite Combination Outfit, \$1.50

WorkRite Hydrometer, only, 1.00

The WorkRite Mfg. Co.

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Put Your Cars on the Second Floor

A Warner Elevator

will help you do this. You should have an electric elevator for your garage. The cost is small. The Service is good with a WARNER ELEVATOR.



Can be used on either direct or alternating current.

Will lift any ordinary car or small truck.

Capacity 3500 pounds. Platform 8'0" x 18'0".

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We have been building elevators for more than fifty years.

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Do This Today

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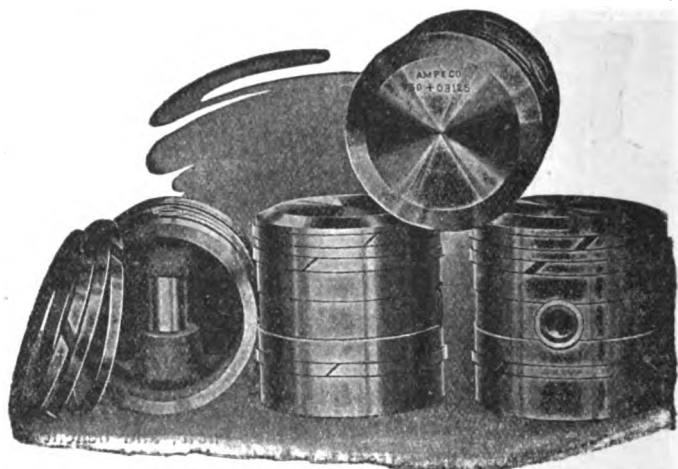
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Can Now Use

"AMPECO" PISTONS



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WE offer the 1918 line of **International Motor Trucks** as a most profitable dealer opportunity. Your biggest selling year is just ahead and these are the trucks with the steadiest popular and growing demand.

Concerns which make careful economy tests as a matter of good business, and which buy economical transportation, regardless of price, are standardizing on **Internationals**. One such concern has in service over 600 **International Motor Trucks** and is adding to this fleet regularly.

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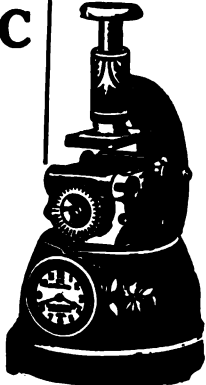


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has become invaluable to the garageman. It has given him a quick, accurate check on the time required for every repair job. It has eliminated the possibility of arguments on time charged to the customer. More and more garagemen are putting their Garages on a business basis at small cost. They are installing Automatic time stamps. Why don't you?

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1-Ton, 1½-Ton
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Now Belongs in Every Tool Box
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Automatically fits every nut used in connection with demountable rims on all makes of cars. Now beautifully finished in nickel and black enamel. More compact and lighter. Improved throughout. Selling on sight. Complete only \$1.50.

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Write for complete details
Dealers, ask for liberal discounts
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NEVERLEAK GASKETS

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Style A—for windshields of all large cars. Patented ball bearing joint—easily adjustable. Made also for Fords and small cars.

There's a great opportunity for profits to dealers and jobbers in the

HINDVIEW AUTO MIRRORS

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They sell themselves.

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Specially Recommended for Heavy Duty in Trucks and Tractors

\$1.00 EACH and worth more
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All genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A.
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"The Accepted Standard"

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Includes Body and Electric Starting and Lighting **\$885**

— Built of All Truck Units The Biggest $\frac{1}{4}$ -ton Truck Value Obtainable.

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Supplies the Farm Home with every advantage of Electricity—Fine proposition for live dealers.

Garages also find GENCO-LIGHT a money saver in battery charging, air compressor work, etc.

Write for particulars

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Leatherwore
*"Is like the hide in most respects
In some respects it's better"*

The long-wearing, rich-appearing motor-car upholstery that can be used to better advantage than genuine leather.

L. C. CHASE & CO., BOSTON
NEW YORK DETROIT CHICAGO
Leaders in Manufacturing Since 1847

Selden Trucks

Light Delivery, 1, 2, $3\frac{1}{2}$ and 5 Ton

Write for full
information on
the Selden Line



DEALERS: Write
or wire for
desirable territory

Selden Truck Sales Company
Rochester, N. Y., U. S. A.

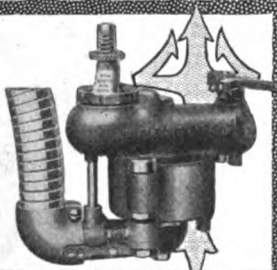
FLECHTER

"TRIDENT MODEL"
FOR FORDS **\$10**

More Power—More Mileage—Easier Starting

Other models for all makes of cars. Distributors wire or write for our big exclusive money-making proposition.

L. V. FLECHTER & CO.
193 Jackson Ave., Long Island City, N. Y.
Detroit Branch: 790 Woodward Avenue



The Carburetor Without A Dead Spot

The VACUUM MUFFLER

INCREASES
ENGINE
POWER

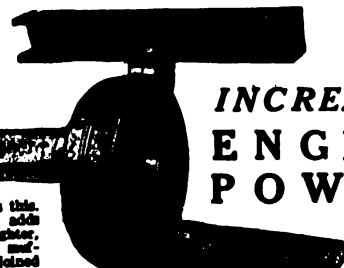
QUICK SALES,
GOOD PROFITS

Assured Dealer who handles this. Saves gasoline, no carbon, adds power and flexibility. Lighter, tighter, simpler than other mufflers. Only 3 castings, joined by 4 bolts.

Guaranteed Against Blowouts

Write at once for full particulars and enormous discounts. This muffler has been proved by car owners in actual service. Never out of order and outlasts the car.

VACUUM MUFFLER CORPORATION, 154 Nassau St., New York



For Ford, Essex, Scripps-Booth:
1 1/2 in. outside diameter.
For Maxwell: 1 1/2 in. outside diam.
For Allen, Grant, Harrow, Oldsmobile, Buick, and 1918 Buick:
1 1/2 in. outside diameter.
Other cars in proportion.

TUNGSTEN
TRADE MARK REGISTERED
SPARK PLUG
Always on the job

TUNGSTEN MFG. CO.
MARSHALLTOWN IOWA

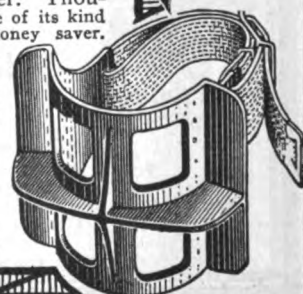
Fulton Mud Hooks

\$1.90 per set of two. Lift the car out instead of digging it in deeper. Thousands in use. Most effective device of its kind on the market. A time and money saver. Act with steady lift which does not strip the differential gears. Made of malleable iron with strong web trap. Put on or take off in a minute. Occupy small space.

At your dealers or by mail, postpaid. Give size of rear tire in ordering.

THE FULTON CO.

1910-12 St. Paul Ave., Milwaukee, Wis.



Note the
Side
Flanges

When writing advertisers please mention Motor World—it identifies you

First Prize \$50
Second Prize \$25
Third Prize \$10
 and 100 other Prizes
 of \$1 each.

METAL HOSE & TUBING CO.
 INCORPORATED
 RAYMOND & TILLEY STS.
 BROOKLYN, N.Y.

Write us for a reprint of our advertisement in Motor World of March 6, 1918 regarding these Prizes offered to users of **TRIPLEXD** Gasoline Hose.

DETROIT BATTERIES

last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.

This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

DETROIT BATTERY CO., Detroit, Mich.
 Eastern Branch, 68th and Broadway, New York City

GEARLESS
DETROIT
 CRANK-SHAFT
 Tire Pump
 Pat. Aug. 25, 1915

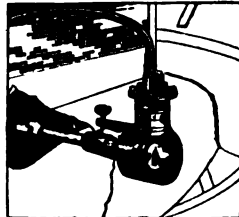
960,000
PROSPECTS

WITH CARS BETWEEN \$800 and \$1300

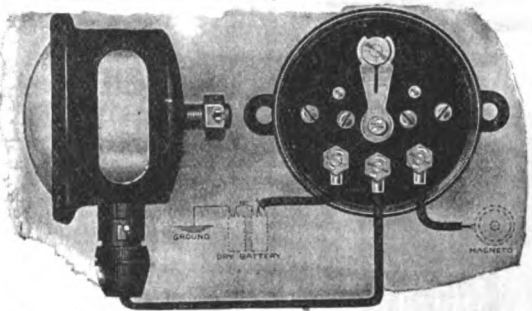
Now ready for Buick, Dodge, Chandler, Hudson, Overland, Reo, Stearns, Saxon 1918, and Studebaker cars. On and off in a jiffy without tools. Not a rubber diaphragm device. Write for details. Dealers, ask for discounts.

Price \$10

DETROIT ACCESSORIES CORPORATION
 559 Hillger Avenue, Detroit, Mich.



49-L
TYPE
INDICATING



49 H
TYPE
NON-
INDICATING

Victor
 TRADE MARK

For FORD Cars

A single bulb electric tail lamp and switch

Operates on either Magneto or Dry Cells

THE CORCORAN-VICTOR CO., 711 Reading Street, Cincinnati, Ohio

NEW DEPARTURE
BALL BEARINGS



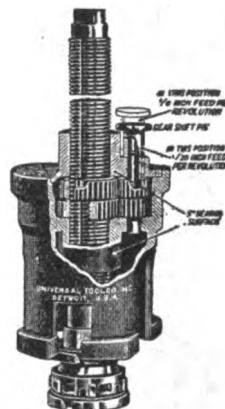
Strength
Stamina
Service



The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee

The New Improved Universal Cylinder Reboring Tool

Is Built to Guarantee Absolute Accuracy



Designed to rebores practically all makes of automobile, tractor, stationary, marine or aeroplane—either open or closed end cylinders, and will rebores a true, round, straight bore. Cutters adjustable from 3/16 to 5/16 of an inch. For other new and important improvements—

Specify Catalog No. 6

Write for free illustrated literature with complete details.

THE UNIVERSAL TOOL COMPANY, Inc.

DETROIT, MICH.

VULCAN
 QUALITY
VULCAN
 AUTOMOBILE SPRINGS

SPRINGS IN STOCK FOR ALL CARS
 90,000 Springs. 588 Types.

6—FACTORY BRANCHES—6

St. Louis, Mo. 1402 Chestnut St. Minneapolis, Minn. 1024 Hennepin Ave.
 Reading, Pa. 533 Franklin St. Dallas, Tex. 209 Houston St.
 Sumter, S. C. 29 Caldwell St. Richmond, Ind. Colonial Bldg.

FACTORY RICHMOND, IND.
JENKINS VULCAN SPRING CO.

TRUXTUN

Converts any car into a substantial
 1-ton or 1½-2-ton truck

*Exclusive territory and attractive
 dealer proposition*

COMMERCIAL CAR UNIT CO.

Philadelphia, U. S. A.

STOP WASTE!!!**ELECTRIC TROUBLE SHOOTER**

It means more work, better work, more efficiency and no guess work. Ambu Electric Trouble Shooter is an instrument which automatically detects and locates accurately and quickly trouble in any American Made Starting and Lighting System standard on any American made car. Shows you what the trouble is and exactly how to repair it. Let us show you how AMBU pays for itself and brings repeated profits—Write today please. Address

AMERICAN BUREAU OF ENGINEERING, INC.
Automobile Department
1022 So. Wabash Avenue Chicago, Illinois

FORD CAR OWNERS USE KEROSENE (COAL OIL)

One mile on Kerosene costs less than $\frac{1}{4}$ cent
One mile on Gasoline costs from $\frac{1}{4}$ to $\frac{1}{2}$ cent

Buy a Detroit Kerosene Equipment

SAVE 60%

Price of Equipment \$25.00 f.o.b. Detroit
30 days' trial or MONEY BACK

ACT PROMPTLY!

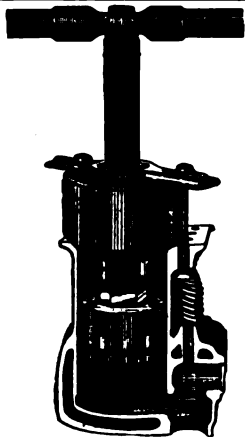
These are days of strict economy

Detroit Kerosene Carburetor Company

Kreage Bldg.

Department 21

Detroit



**Make More Profits
BY USING
STORM
Reboring Machine**

The most practical machine for any type of motor. SIMPLE, SPEEDY, ACCURATE and RELIABLE for hand or power. No shop complete without one. In daily use in all parts of U. S. A. and foreign countries.

Shortage of new cars make it indispensable in large and small shops. We furnish machines of varied capacities from $2\frac{1}{4}$ " up. Also special Ford Machine. For sale by leading jobbers. Oversize pistons for all makes of motors.

For further information write

STORM MFG. CO., Thompson, Iowa
426-27 W Street

Defender Auto-Lock Supremacy

1. Locks coil box and protects units by strong steel band. (Pat. pending)
2. Grounds and short-circuits the entire electrical system. (Pat. pending)
3. Solid aluminum case locks over Ford switch without using screws. (Patent pending)
4. Recognized as standard ignition lock by insurance underwriters laboratories, saves 15% on insurance.
5. Guaranteed for life of the car.

THEY SELL AND REPEAT!

DEFENDER AUTO-LOCK CO., Marquette Bldg.
DETROIT, MICH.

KIMBALL TIRES

Are Doubling Profits for Some Dealers

Write for Our Interesting Offer

These tires are sold without a guarantee. Write and ask us how we do it. They are positively not seconds, but first-class fresh casings.

Non-skid Tubes		Non-skid Tubes	
30x2.....	\$ 6.25 \$1.90	32x4.....	\$16.45 \$2.10
30x2 1/4.....	10.85 2.15	32x4.....	17.55 2.10
32x2 1/4.....	12.45 2.25	34x4.....	18.25 2.20

Prices on Other Sizes in Proportion
Send us your order today, accompanied by cashier's draft on Chicago or New York, or money order. Large and small orders given immediate attention. Write today for territory. Prices will be advanced very shortly. Place your order now.

This
"Straight Side"
Type is Made Also
in Clincher Type



1469 Michigan Ave., Chicago

Inter-State

**QUICK
Get-a-way**



Your heel on the starter button—a touch to the air adjustment on the dash, and your engine starts—in winter as well as summer.

It's a sales-making demonstration for Inter-State dealers. We want more dealers. Write at once.

\$1,000 to \$1,025

Effective December 1st, 1917

INTER-STATE MOTOR COMPANY
MUNCIE, INDIANA

Turn Waste Space
And Spare Time
Into Big Profits

Recharging Batteries

offers garage men a bigger opportunity for profits than anything else they can do.

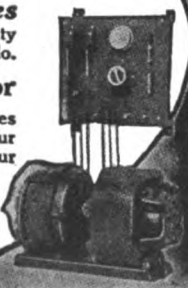
Our 3-G Motor Generator

charges from one to eight 6-volt batteries at one time. Anyone can operate it. Our 9-G Generator charges one to twenty-four batteries at a time.

There are over 8,000 of our vibrating type Battery Chargers in use. Write for particulars.

ST. LOUIS ELECTRICAL WORKS,
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St. Louis, Mo.

Ask For
Catalog No. 4.

**ZENITH CARBURETOR**

KNOWN the world over as the zenith of carburetor efficiency. A long list of American builders of cars, trucks and aeroplanes believe this simple, plain tube device to be the best insurance for permanent carburetor satisfaction.

Zenith Carburetor Co.

New York Detroit, U.S.A. Chicago

FAULTLESS AIR COMPRESSOR

IS O. K'D. BY THE TRADE



The FAULTLESS Air Compressor is thoroughly balanced, with heavy tight and loose pulley on one side and fly wheel on the other. Prevents all jerk on belt. No compressor with pulley on one side without fly wheel, can possibly run as smoothly as the FAULTLESS.

Made of best materials, highly finished, with bronze bearings throughout. Handled by some of the largest jobbers in the trade. Write for the best compressor proposition to be had.

Faultless Engine Company
Kansas City Missouri

DETROIT

DETACHABLE
WEATHERPROOF
TOP

Recognized as the leader in quality, and manufactured by the largest independent top manufactory in the world. A splendid all-season sales proposition, in strong demand by Chevrolet, Hudson, Ford and Maxwell owners.

The big sales totals and profits hung up by Detroit Weatherproof Body Company Dealers are the talk of many towns. YOU can get information about profit possibilities by writing.

Detroit Weatherproof Body Company, Pontiac, Mich.

MR. DEALER

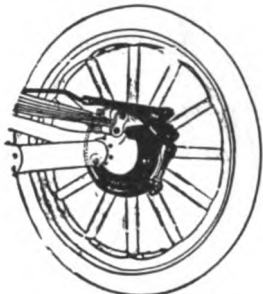
One dealer in a town of 3000 people installed Forty Sets of "Pla-Safe Brakes" last March. Another dealer in a crossroads town installed twenty-five sets this summer.

All you need to do is to show a Ford Owner this Brake and he buys it.

Simple to install, no holes to drill. Why not cash in on this fast-selling accessory?

Write for our Disc and Big Selling Plan.

PLA-SAFE CO. Successors to **L. A. Leathers Co.** **BROOKVILLE, PA.**



Retail price
\$10.00 per Set

His car wore a
Hartford
BUMP ABSORBER
— more than a Bumper

and it smothered the blow.

Car escaped without damage, expense or jar

Here's more than a mere bumper — an absorber of bumps.

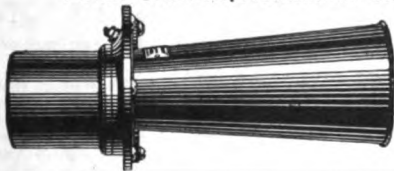
Edward V. Hartford, Inc.
142 Morgan Street
JERSEY CITY, N. J.

"IT OFTEN HAPPENS"

SPARTON PRODUCTS

First Choice of
America's Best Cars

Sparton Motorhorns—hand-operated and motor-driven.
Sparton Gasoline Vacuum System.
Sparton Honeycomb Radiators and Sparton Radiator Fans.
The Sparks-Withington Co., Jackson, Mich., U. S. A.
Pacific Coast Representative: **Norman Cowan Co., San Francisco, Cal.**



GUARANTEE

VISIBLE PUMPS

Fast service, full measure and perfectly filtered gasoline, assure dealers the constant patronage of satisfied customers.

Write for the pump book

GUARANTEE LIQUID MEASURE CO.
Farmers Bank Bldg. Pittsburgh, Pa.



Sexton's

CASTOR MOTOR OIL

The only perfect heat resisting oil because of the compounded pure castor and high grade mineral oils. More miles—less gas.

"Keeps Your Motor Young"
Send for Booklet M-107

SEXTON OIL CO., North Chicago, Ill.

BEARINGS SERVICE COMPANY

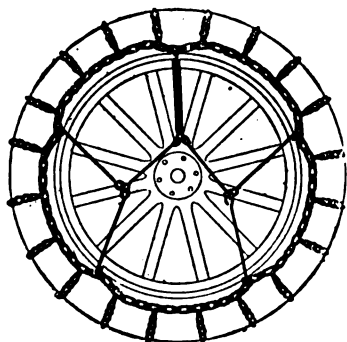
Nation-wide Service on Bearings

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San Francisco
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General Offices
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Dallas
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Cleveland
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Merchant's Anti-Skid Chain Tightener at \$1.00

a pair offers a swell opportunity for profits to dealers. It keeps the chain from running too loose and pounding on the fender, yet allows it to creep around the wheel.

Simple, light, neat, compact, durable—easily carried and easily applied.

If your jobber can't supply you—write for our liberal proposition.

M. H. MERCHANT
Manufacturer

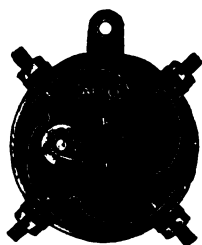
AJAX TIRES

The Only Tires That Have, Or Can Have, SHOULDERS of STRENGTH.

American Chain Company, Inc.

Bridgeport  Connecticut

Manufacturers of Weed Tire Chains, Weed Chain-Jacks, Dobbins Blow-Out Chains, Campbell Cotter Pins, Towing Chains, Tire Lock Chains, etc.



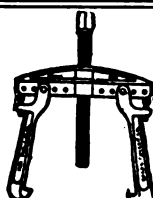
APCO TIMER FOR FORDS

Gives a hotter, quicker spark, an easier start, more power and speed, smoother running, more miles to the gallon of gasoline, fewer short circuits, and freedom from all of those troubles that the regular timer develops.

\$1.00
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DEALERS. DISCOUNT 33 1/3 %
IN 50 LOTS
Ask Your Jobber.

APCO MANUFACTURING CO.
PROVIDENCE U. S. A.



Crane Wheel Pullers

For Removing Auto Wheel, Gears, etc.

New Locking Arm holds Puller on your work
Send for Bulletin D. Puller Arbor Press, etc.

CRANE PULLER CO., Arlington, Mass.

\$1245

1 1/4 Ton Chassis

BETHLEHEM

MOTOR TRUCKS

"Dependable Delivery"

F. O. E. ALLENTOWN

\$1305

1 1/4 Ton Complete with body and cab

\$1850

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Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

BETHLEHEM MOTORS CORP'N, ALLENTOWN, PA.

HELCO No. 2

Steering Control and Locking Unit
is a Business Winner

Prevents Theft

High grade padlock locks steering gear in place. Cannot be driven or towed away.

Sells Fast

Motorists recognize the advantages of HELCO NO. 2, and want it on their cars. 6000 now in use. Write for discounts and details. Price, \$5. West of Mississippi, \$5.00. With padlock, \$1 extra.

**HOMESTEAD ENGINEERING
LABORATORIES COMPANY**
HOMESTEAD, PA., U. S. A.

Prevents Accidents

Holds wheels on straight course. Absorbs shocks from faulty pavements, snow, sand, ruts, mud, etc.

Prevents Wear

Better transmission and steadier tread mean longer tire mileage and less fuel consumption.



BATTERY SEPARATORS

OUR SEPARATORS give longer and better service. The veneered wood out of which these Separators are made is treated by a special chemical process. —GET THE BEST—

FERRY-MARK MANUFACTURING CO., 2119 Bismarck Street, ST. LOUIS, MO.

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THE OHIO TRAILER CO.
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Next season you will do it without being told.

The need for trailers is so general that they are easy to sell. They get easier to sell every month as people get used to the trailer idea. The trailer has come to stay because it is the only logical way to solve carrying problems.

THE WILLIAMS SPOTLIGHT

At Your Jobbers or write

WILLIAMS MFG. CO.
310 N. Flower Santa Ana, Cal.



THE MILLION

Combination Rim Tool and Emergency Jack

This is the most perfect rim tool made. The only tools that enable the operator to remove or replace all makes and sizes of split rims, without the use of other tools or attachments of any kind.

Price \$2.50

Jobbers—Dealers—Write for descriptive Circular and discounts

MILLION MOTOR COMPANY, Adrian, Michigan

STOP THE SPRING BREAKAGE

New Era "Better" Springs absolutely does it. Graphited for 3 years lubrication. 100 jobbers catalogue, or send for our list covering all cars. Lowest prices. A real guarantee. Wire needs.

New Era Spring & Specialty Co.

1179 Hamilton Ave., Grand Rapids, Mich.



Red Head SPARK PLUGS

Ever Good

BUMPERS & MIRRORS

Emil Grossman Mfg. Corp. Bklyn. NYC

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For Parts, Accessories, Tires, Machinery, Rebuilding, Repairing, Welding and Used Cars. Also Help and Situations Wanted and Miscellaneous Classified Advertising.

"We Tear 'Em Up and Sell the Pieces"

Fix Up Your Car for the Season. We Have the Parts for Over 100 Makes and Models

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Gears
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Bearings
Water Pumps
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Magnetos
Starters
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Carburetors
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Parts shipped same day order is received. Satisfaction guaranteed or money promptly refunded. Save one-half to three-quarters on Repair Parts.

For quickest service, wire, write or phone—

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Kansas City, Mo.

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During the past several months, owing to financial difficulties of the former management, there has been considerable confusion as to where Detroit and Briggs-Detroit repair orders should be sent. With our acquisition of the Detroit Motor Car Company, however, this condition is entirely overcome, and in the future all Detroit and Briggs-Detroit service will be given direct from our factory at Detroit. Therefore, to insure prompt attention and handling, repair orders and correspondence must be addressed (as before) to

Detroit Motor Car Co.
584 Franklin Street Detroit, Michigan

Pope Hartford Parts

Buy your parts for all models of Pope Hartford cars from the only legitimate and authorized manufacturers—who own the original drawings, patterns, tools and fixtures and are making these parts daily. Don't buy and use second hand parts. They may be the cause of serious accidents and result in much additional expense in the long run.

The Hartford Motor Car Co.
410 Main St., Hartford, Conn.

NEW PARTS FOR ORPHAN CARS

We make a specialty of furnishing new gears and axle shafts, axles, repair parts for motors and transmissions for:

Cars that have been discontinued: CUTTING MOTOR CARS, CLARK CARTER CARS, MILWAUKEE MOTOR (all cars using same); CONTINENTAL ENGINE COMPANY Repair Parts, MASON MOTOR CARS, IMPERIAL MOTOR CARS.

L. C. ERBES & CO.

2652 W. University Ave., Saint Paul, Minn.

CONTINENTAL 6-Cylinder Motors Brand New \$148

Here's a big bargain:—Brand new six-cylinder genuine Continental motors, size $3\frac{1}{2}$ x $5\frac{1}{4}$, suitable for trucks, pleasure cars or motor boats. Complete with Bosch magneto, Schebler carburetor and Auto-Lite generator—all for \$148, less than one-third their cost.

All motors positively new and unused, never having been removed from the original crates in which they were shipped out by the Continental Motors Corporation. Blue prints and other engineering data furnished upon request. Immediate shipment guaranteed.

STANDARD MOTOR PARTS CO.
589 Franklin St. Detroit, Michigan

G EARS, BEARINGS, PART S
CARBURETORS, MAGNETOS,
NEW AND USED.
Inquiries solicited. Write us now.
PROGRESS AUTO PARTS CO.
5121 Euclid Ave., CLEVELAND, OHIO

P-A-R-T-S

Rear Ends, Transmission Gears, Ring Gears, Motors, Magnetos, etc. Parts for 100 or more different makes of cars. What do you require?

POUGHKEEPSIE WRECKING CO.
138 Mill St., POUGHKEEPSIE, N. Y.

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Parts and Repairs

USED PARTS

**BOUGHT
SOLD or
EXCHANGED**

**For Any and Every
Automobile Made**

Somewhere On Our

53,000 FEET OF FLOOR SPACE

is that active or orphan part,
waiting for you to claim it, for
which you have been searching
a long, long time.

**ARE YOU IN SEARCH OF
A MOTOR**

different from the one you have?
Or a different magneto?

Would you like to exchange a
Hyatt for a Timken?

It doesn't matter to us what it
is—any gosh darn part on your
car or off

**WE WILL TRADE
WITH YOU**

Just tell us what you have or
send it and say what you want.

**THE DEMAND OF MILLIONS OF
AUTOMOBILE OWNERS**

has made this move imperative.

With the war of to-day taking
all the parts which the manufac-
turers can give (ours too when
they want them), the individual
car owner is without a medium
through which to secure the
part he wants.

IMPORTANT!

**Get This—Get It Right
—And Don't Forget It!**

The parts we offer have never
been salvaged from the scrap
heap but carefully selected from
cars no longer in use.

**All Parts Guaranteed or
Money Refunded.**

**We Buy, Sell and Trade
Used Automobiles**

George Shapland Co., Inc.

Largest Used Car Dealers between New York and Buffalo

333-337 Lafayette St., Utica, N. Y.

Parts and Repairs

PARTS

50 to 80% Off

Manufacturer's List Price

Allen	Lozier 4-cyl.
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Cadillac 1909-14	Maxwell 4
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Everitt	Pilot
Flanders, 20, 2 & 3 speed	Pierce Arrow
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Great Western	R. C. H.
Haynes	Rambler, 4-cyl.
Hudson 20, 33	Rco
Hudson 6-54, 1914-15	Richmond L3, 4-cyl.
Hupp 20, 32	Sampson
I. H. C.	Silent Knight
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International, 4-cyl.	Standard Electric
Jackson	Stearns
Kissel-Kar 6, 60	Stoddard Dayton 30, 40, 60
Knex 4, 6	Studebaker 4, 6
Krit, 1911-12-13	Thomas Detroit
Leader	Wayne, 4-cyl.
Lexington	Waverly Electric
Little 6	Westcott
Little, motor and trans.	Winton Six
Lyons-Knight	Zip
Magnetos, Motors, Transmissions, Rear Sys- tems. When ordering, state model and year of your car, if possible, also send your old part.	

All orders filled on day received

I. WOLF AUTO PARTS & TIRE CO.
Main 1579 619 N. ILLINOIS ST. New 22-063
INDIANAPOLIS, IND.

Parts and Repairs

MOTOR BARGAINS

New Rambler Motors, \$92.00.
Second-hand Rambler Motors, thor-
oughly overhauled, in first-class
condition, \$65.00.
Model RL Remy Magnetos, brand
new, \$6.50.
Coils for same, \$4.00.

Motor Equipment Co.

1438 Michigan Ave.

Chicago

Illinois

Peerless Auto Body Polish

A varnish food to brighten and renew the appearance of
all varnished surfaces on an automobile. Applied and pol-
ished ready for use in a very few minutes.

Sold by Garages and Auto Supply stores.

The Columbus Varnish Co., Columbus, O.

USED PARTS—ALL CARS

Will Save You 50% to 75%
In business here 19 years. Write me what you
want—I've got it.

JOSEPH SCHWARTZ

"Anything from Headlights to Tailights"
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BALL AND ROLLER BEARINGS

The Bowden Patent Wire Mechanism

A mechanical device of unlimited possibilities

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32x3.....	5.75	35x4½.....	8.00
34x3½.....	5.75	36x4½.....	8.50
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Continued on Page 151

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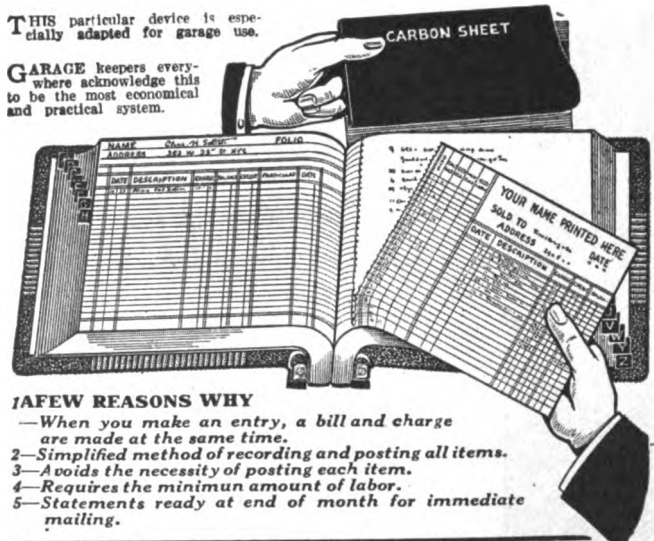
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